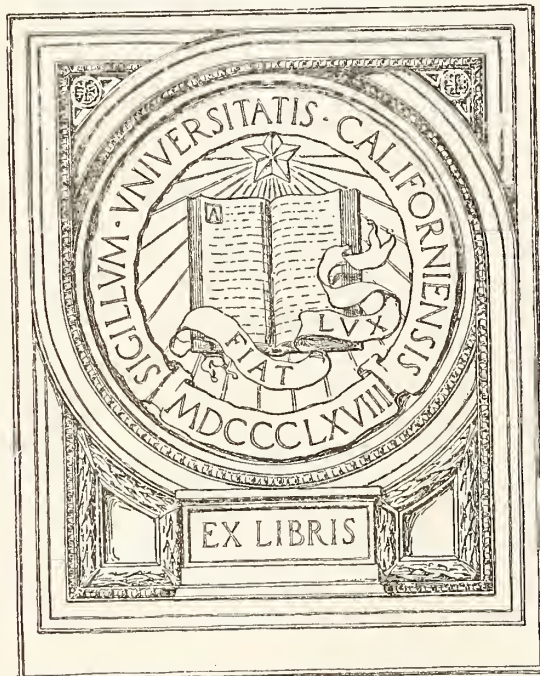


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Colorado Medicine

The Journal of the Colorado State
Medical Society

Editor
C. S. BLUEMEL, M. D.

Volume XXII, January to December
1925

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EDITORIAL NOTES AND COMMENT

The Quack of 1900

Quacks abound, and their advertisements offend. Yet newspaper displays are getting better. As we turn to the files of a quarter of a century ago, we find the advertisements unmistakably in the rough.

The files disclose:

Charming Madame Posner of the South. She is America's "greatest dermatologist," and removes wrinkles in one treatment.

Dr. Sterling Johnson claims to have signed only four death certificates in ten years, and he invites physicians to consult him when puzzled by obstinate cases.

There is Dr. Bennett's electrical belt for "mock manhood;" and Dr. Cooper's Allopathic Specific No. 34, which drives rheumatism out through the kidneys and the pores of the skin.

Cyphilene is advertised. It permanently cures primary, secondary, or tertiary syphilis in 15 to 35 days. If time is no object, you can patronize the Anchor Medical Institute, which furnishes home cures at three dollars a month.

Another attraction is the King Medical Company, incorporated for \$100,000 and featuring "the most advanced medical thought of the hour."

Dr. Powell Reeves is early on hand in the interests of preventive medicine; he warns against "neglect", which in turn leads to nervous irritation, loss of memory and ambition, softening of the brain, idiocy, and insanity.

There is a liberal assortment of frauds and

indecencies, most of which would be unprintable today except in a telephone directory.

Habit Clinics

A new social agency—the habit clinic for children.

There are many problems for the clinic to investigate—untruthfulness, disobedience, negativism, tantrums, truancy, and so forth. The fault may be found in the child, or in those that sponsor him. Perhaps the father is too rigid, the mother too impatient, or the grandparent interfering. These are things for the clinic to examine in addition to the child. Often, of course, the diagnosis will not be clear, but the clinic will prove helpful if it forms a barrier between the home and the juvenile court.

The Lockstep

What a pity the school cannot be a habit clinic instead of an educational factory with every product and procedure standardized.

The child is a unit which must fit into the educational scheme and schedule—and in the fitting process his needs are overlooked. He may master Latin and Greek, yet never master a habit of indecision or self-consciousness. He is educated; he is standardized; his memory is drilled, but nothing is done for the other twenty faculties that comprise his identity.

Antioch College

Antioch College in Ohio is essaying a new

mode of education. Its purpose is to develop initiative rather than to grade performance.

While in college the students support themselves by working half time, and they must do as well at their jobs as they do in their studies.

Each job is held by a pair of students, who alternate in work and study during the six years of the college course. In the end, they have better training in judgment, self-reliance, and self-expression than the orthodox student who has not gone beyond the lecture or the laboratory.

Directed Thinking

This is an age of directed thinking. Various agencies appropriate spaces of time, and urge us to think and do in these periods as they direct. Today we have two minutes of silent prayer; tomorrow we take a Near East dinner; next week we eat more apples; and for the rest of the year we shall be busy with safety week, radio week, clean-up week, be-kind-to-animals week, and various seven-day periods of foreordained activity. When things are better ordered, we may have a weekless week in which to fortify ourselves against what is commercial in this propaganda.

Paresis

Good results are claimed at the Liverpool School of Tropical Medicine in the treatment of paresis with malaria. Among 84 patients treated, 23 were discharged as apparently cured. The cures may prove merely "apparent," but it is gratifying to note the optimism with which paresis is now assailed.

Colors and Growth

The research laboratory of the Paint Manufacturers' Association reports that young guinea pigs grow more rapidly in brightly painted rooms than in darkly painted rooms. With walls of tan, white, and pale blue, the gain in weight ranged from 20 to 31 per cent, while for the same period the gain was less than 8 per cent for similar animals kept in rooms of dark red, dark green, and black.

No observations have been made on growing children, but it is supposed that corresponding influences obtain.

A Warning

The Journal of the Michigan State Medical Society calls attention to a typographical error that might prove fatal.

Sajou's Analytic Cyclopedia of Practical Medicine, Volume 4, page 281 (1924 edition) recommends immunizing infants with 10 c.c. doses of toxin-antitoxin. The 10 c.c. should read 1 c.c.; the larger dose would of course be fatal.

Full Time Secretaries

The following state medical societies have full-time secretaries: Massachusetts, West Virginia, Virginia, Wisconsin, Ohio, Texas, Missouri, California, Pennsylvania, and Michigan.

The majority of the secretaries are laymen; a few are physicians. Virginia and California, have women secretaries.

Full-time secretaries usually edit the state medical journals, and they do better jobs than the odd-hour scribes who run their journals as a side issue. A well-conducted medical journal can be made a source of revenue that will pay a large part of the secretary's salary.

A secretary can render valuable services to a society—often creating an active organization out of what was formerly a mailing list.

For the Deaf

An international conference on the education of the deaf is to be held in London in July, 1925, under the auspices of the British National College of Teachers of the Deaf.

The last international conference was held eighteen years ago, at Edinburgh, and the present conference will review the developments that have since transpired.

The Universal Specialist

Says the Rocky Mountain News: "The ideal medical practitioner of the future will be that doctor who has acquired a working

knowledge of the specialties and is capable of applying any of them."

A fine ideal, but one that will never be realized. Imagine the capacity of a man who could remove a cataract, do a podalic version, examine a spinal fluid, pass a bronchoscope, run a basal metabolism, perform a gastro-enterostomy, fluorscope a chest, set a fracture, and practice medicine on the side.

This ideal practitioner is no more feasible than the ideal department store with everything on one counter.

Sunlight

According to experiments conducted at the Iowa State College, a window on the south side of a house gets 45 times as much sunlight as a window on the north side.

Teeth

The University of California has received a fund of \$105,000 for the investigation of pyorrhea and its relation to other human ailments. The larger part of this sum, \$85,000, comes from the Carnegie Corporation of New York.

SECRETARY'S NOTES

The A. M. A. Bulletin

Every Fellow of the American Medical Association is now entitled to the A. M. A. Bulletin, which is a little monthly publication. It should have been coming to every Fellow for the past year or more. If you are not getting it and are a Fellow of the A. M. A., take it up with the Secretary of the American Medical Association, 535 North Dearborn street, Chicago, Ill.

This little bulletin on arrival may look so much like some of the proprietary medicine circulars we get that it will be thrown in the waste-basket unthoughtedly.* Look for it.

Any member will find much of interest in the bulletin. In the December issue will be the beginning of an account of the meeting

of the State Society secretaries held in Chicago in the latter part of November. If not in the December bulletin, it will be in the January bulletin. Since a great many subjects were discussed which have to do with the welfare of the Association and the interests of members of the Association, it will be worth while to read about the meeting. You will find out what other State Medical Societies are doing.

What Is Fellowship in the A. M. A.?

Your Secretary has found that most members have only a hazy understanding of the advantage which Fellowship confers. This is it in a nutshell. If you pay only your county society dues, you become a member of the State Society and of the American Medical Association, but no part of your dues goes to the national organization. Therefore you are not supporting it in a financial way. But if you will subscribe to any one of several of the publications of the American Medical Association, a part of that subscription will constitute your Fellowship dues and you then become a Fellow, which will give you the privilege of registering at the annual meetings and taking part in the deliberations of the General Assembly of the A. M. A., which mere membership would not allow. Also only Fellows are eligible for offices in the A. M. A. It should appeal to the pride of every member to make himself a Fellow and feel that he is doing his part in actively supporting a great organization which has accomplished wonderful things for the medical profession, and expects to do a great deal in the future for the interests of the individual doctor. Merely subscribing for the Journal is not enough. You must make formal application for Fellowship at the time you subscribe. Several journals are optional, such as The Journal of the American Medical Association, The Archives of Internal Medicine, The Archives of Dermatology and Syphilology, The Archives of Pediatrics.

A 1925 Program

A plan which was definitely approved as a 1925 program of the A. M. A. and the state medical societies, was to bring about a better understanding of, first: The Ameri-

*Our Secretary has been seized with the crossword puzzle craze.—Editor.

can Medical Association—its history and development; its plan of organization, constitution and by-laws; its administration features, including its work and achievements and the service it renders to the physician; and explanation in detail of its publications, of the requirements for Fellowship and the benefits of Fellowship. Second: The State Society—its organization; its activities; its membership relationship, qualifications and benefits. Third: The individual's responsibility to county, state and national organizations, to fellow practitioners, to the community and to humanity.

Definite steps were taken for the dissemination of explanatory material from the A. M. A. headquarters during this year and it is hoped that it will not be long until every member of the A. M. A. will be receiving special information that will make plain to him what he gets out of belonging to his county, state and national associations.

A Full-Time Secretary

The time will come when the Colorado State Medical Society must seriously consider having a paid full-time executive officer to attend to organization and to journal publication, and to undertake certain programs for the individual benefit of the members, such as medical defense and a collection agency, or at least a rating bureau which can be used by the doctor in getting data on the moral and financial status of his patients. There are many services of this kind which cannot be rendered until a paid executive staff is available.

F. B. STEPHENSON, Secretary.

U. S. ARMY GENERAL HOSPITAL NO. 29

University of Colorado Unit

Medical Department, Army of the United States

This is to certify that the governing authorities of the **University of Colorado School of Medicine** have signified their support of the national defense program and given evidence of their patriotism by organizing and fostering a General Hospital

as a unit of the Organized Reserves of the Army of the United States.

Pursuant to instructions of the Secretary of War, June 27, 1922, the organization of General Hospital No. 29, the

University of Colorado

unit is hereby authorized.

Signed: M. W. IRELAND,

The Surgeon General.

War Department, Washington, D. C.,
March 26, 1924.

The Medical School authorities requested Dr. Williams to organize this hospital and under date of June 3, 1924, Lt. Col. William Whitridge Williams, Med-ORC, was assigned by the Surgeon General to General Hospital No. 29 in the capacity of commanding officer.

The appointment of members of the Staff is now complete and the duties and names of the assigned officers are as follows:

Chief of Medical Service—Lt. Col. J. N. Hall, Med-ORC, Professor of Medicine, Emeritus.

Chief of Surgical Service—Lt. Col. H. S. Finney, Med-ORC.

Chief of Laboratory Service—Dr. E. R. Mugrage, Associate Professor of Clinical Pathology.

Roentgenologist—Dr. John S. Bouslog.

Executive Officer—Major G. Walter Holden, Med-ORC.

Assistant to Chief of Medical Service—Major Paul J. Connor, Med-ORC.

Assistant to Chief of Medical Service—Dr. O. M. Gilbert, Associate Professor of Medicine.

Assistant to Chief of Surgical Service—Dr. William C. Finnoff, Associate Professor of Ophthalmology.

Assistant to Chief of Surgical Service—Captain James A. Philpott, Med-ORC, Clinical Assistant Genito-Urinary Surgery.

Assistant to Chief of Surgical Service—Major Henry W. Wilcox, Med-ORC, Instructor in Orthopedic Surgery.

Chief of Dental Service—Dr. Edward C. Carter.

Evacuation and Receiving Officer—Dr. Philip W. Whiteley, Clinical Assistant in Obstetrics.

Laboratory Officer—Mr. James V. Worth, Laboratorian, U. S. Veterans' Bureau.

Medical Ward Officers—Dr. Wm. M. Greig, Dr. Lorenz W. Frank, Clinical Assistant in Medicine; Captain H. G. Macomber, Med-ORC, Clinical Assistant in Medicine; Dr. John G. Ryan, Dr. Atha Thomas, Captain J. E. Weatherford, Med-ORC; Dr. W. B. Yegge.

Surgical Ward Officers—Dr. R. M. Burlingame, Dr. G. E. Cheley, Clinical Assistant in Surgery; Dr. Edward B. Dewey, First Lt. L. W. Greene, Med-ORC; Dr. W. H. Halley, Clinical Assistant in Gynecology; First Lt. G. H. Harvey, Jr., Med-ORC, Clinical Assistant in Medicine; Dr. Ross W. Johnson, Clinical Assistant in Surgery; Captain Carl A. McLauthlin, Med-ORC.

Dental Surgeons—Dr. I. R. Bertram, Dr. E. T. Glessner, Dr. E. H. Lighthall

Quartermaster—Captain Eugene Kaiser, QM-ORC.

Adjutant—Mr. Bernard J. Seeman.

Detachment Commander—Mr. Mark P. Beam.

C. O. Detachment of Patients—Second Lt. Alfred B. Wilcox, MA-ORC.

Assistant Quartermasters—Mr. Fay C. Chambers, Pharmacist, St. Luke's Hospital, Denver; Second Lt. William J. Marchbank, QM-ORC.

Mess Officer—Mr. Marcel J. Renaulte, Head Chef, Antlers Hotel, Colorado Springs.

Chaplain—Rev. C. J. Tinker, Rector, All Saints Church, Denver.

Chief Nurse—Miss E. Luella Morrison, R. N., Superintendent of Nurses, Children's Hospital, Denver.

The personnel of a General Hospital consists of forty (40) commissioned officers, one hundred and twenty (120) nurses, and three hundred and twelve (312) enlisted men.

The following circular issued by the War Department briefly explains the functions of a General Hospital:

"The General Hospital is an institution of a thousand beds designed for the definitive treatment of sick and wounded. During the World War this class of hospital was

known as the Base Hospital. They are fixed establishments usually remaining at their original locations throughout the period of combat operations. They usually pertain to the communication zone at the rate of one for each division of combat troops. Their exact location in the theater of operations or home territory depends entirely upon the extent of the military operations and the distance from the home territory. They are housed in permanent structures, such as schools, hotels, barracks, industrial plants or former hospitals, or specially constructed buildings, and while normally caring for a thousand patients are capable of crisis expansion to twice that capacity. Where circumstances permit general hospitals are grouped into hospital centers which facilitates their administration and provides for more extensive specialization within the center.

"The General Hospital should be organized and equipped so as to furnish the maximum degree of comfort possible under the conditions of war. General hospitals receive patients by hospital train direct from the evacuation hospitals at the front. Those located nearest the zone of combat frequently receive pre-operative cases, while those at a greater distance receive cases that have been operated at the evacuation hospitals or surgical hospitals in the combat zone.

"Cases that require special treatment and are not likely to be fit for service for a considerable time or will be permanently incapacitated for further military duty are evacuated to the Zone of the Interior (home territory). Those recovering from their wounds are transferred either to convalescent hospitals or replacement depots or turned over direct to military authorities for return to the front. The general principle is to give definitive treatment to every case until it is definitely determined that the patient will be unfit for military duty.

"The functioning of these hospitals, therefore, clearly indicates the necessity of a highly specialized corps of professional men trained in medicine, surgery and allied specialties, and requires of the commanding officer an equally high degree of administrative and executive ability."

MODERN DIABETIC TREATMENT*

The Simplicity of Its Methods and Its Dependence Upon the Education and Co-operation of the Public, the Patient and the General Practitioner

ELLIOTT P. JOSLIN, M.D.

BOSTON, MASS.

Prevention. A Jewish junk dealer, having earned a modest fortune by hard muscular work, changes his business, stops loading junk, starts growing fat and soon develops diabetes. What a pathetic outcome of the industry of a toiler! How different the result from that contemplated! A short and slender healthy girl weighed 92 pounds at her marriage, gained little with her four babies until 45 years old when she, too, began to "stouten up", adding 80 per cent to her weight, and now the children have a diabetic mother. A civil engineer is promoted from active work in the field to brain work in the office. Exercise ends, obesity begins and diabetes promptly supervenes. One more example. A sturdy youth, accustomed in his daily task to a walk of ten miles or more, cuts his big toe with an axe, convalesces in his chair with a candy box at his side and another diabetic is added to the million already in the United States. I feel almost ashamed to see such cases. I feel I should be neglecting my duty if I did not bring them to your attention and to the attention of the insurance companies. We physicians will lose the respect of our patients, and insurance companies will lose their money if such diabetic accidents are not prevented. Diabetes is largely preventable, because it is overwhelmingly more common in the fat.

The Increasing Frequency of Diabetes: The Doctor's Responsibility for It and His Duty Toward It. The turning point of susceptibility to diabetes is 45 years of age. After that period it becomes fifteen times as common as it is under 45 years. Gain in weight in young individuals is natural, because with it are associated growth and height and development of all the functions of the body. Even when the gain in weight is unusual, diabetes seldom occurs. But when growth is attained and maturity achieved a gain in weight is dangerous.

For the increased frequency of diabetes today the medical profession is largely to blame. It is the doctor who has raised the average expectation of life from under 45 years a generation ago to over 45 years now and thus exposed a new race of human beings to diabetes. The doctor has abolished the capital punishment of an infectious disease and replaced it with the lingering sentence of a chronic disease. We must look out. If we let the people live long, we must let the people live well. The medical profession in adding years of life to the community should add years of health and not years of disease.

The Recent Increase in the Consumption of Sugar. The marked increase in the consumption of sugar in the United States in the first years of this decade compared with the decade 1910 to 1920 may be a factor in the increase of diabetes. With Haven Emerson I agree that it is not so much the increased consumption of sugar which is important as it is the increased consumption of food of which sugar is an indication. Certainly the age factor is far more important than the sugar factor, because the incidence of diabetes in the young has changed little compared with that in the old. Nevertheless the change in sugar consumption is striking. Between 1910 and 1920 the average inhabitant ate 84 pounds of sugar a year, but since 1920 the amount has risen about 20 pounds or twenty-five per cent. In 1921 it was 84 pounds, in 1922 it was 103 pounds, in 1923 it was 95.6 pounds, and for the first six months of 1924 it has been estimated at 110 pounds. One of my friends who is in a position to know writes me under date of September, 1924: "The figures in regard to indicated consumption cannot be very exact and the actual consumption for six months is also misleading. A year's consumption is the shortest time upon which to base any estimate." During the war we ate less and worked more and diabetes de-

*Read at the annual meeting of the Colorado State Medical Society, October 7, 8, 9, 1924.

creased. Must we have recourse to another war just to lower diabetic morbidity?

The Diagnosis of Diabetes. The wife of a Jewish rabbi came to my office this last month with diabetes and how was the diagnosis made? By a doctor? No? By the insurance company? No! It was found out by her 75 year old mother who had the disease and had been taught by her nephew, a druggist, 700 miles away in Detroit, to test her own urine for sugar. Another instance. Mrs. Sagosian was our despair a year ago at the New England Deaconess Hospital, because she understood so little English and did not seem to comprehend what we tried to teach her. But last month she sent in her son in whose urine she had discovered sugar. We confirmed the diagnosis by finding 3 per cent and thus could commence hopeful treatment in an early detected case. If an immigrant Jew and an immigrant Armenian can diagnose diabetes and do diagnose diabetes, is it not about time that we teach our native born Americans to do so too? Would you teach the modern patient less medicine; he wills to learn more. I tell my diabetics that they are in large measure personally responsible for the prevention and discovery of diabetes in their own families. What would you think of teaching the boys and girls in your High Schools who study Chemistry the use of the Benedict test? I believe the medical profession of your city as well as its citizens would profit thereby.

The Diabetic Diet. The dietetic treatment of diabetes cannot be made too simple.

The average mental age of the diabetic patients I see in the hospital I estimate to be under rather than over that of a child of ten. There are few mothers who are not confounded by the diabetic arithmetic of their children. This I never realized until I received a letter from Miss S. one of my most faithful nurses, who had for many years cared for a retired judge and later was put in charge of the six year old grandson of another judge. She wrote me that she had no difficulty with her new six year old patient, notwithstanding the disparity between his age and that of her former charge, because they were mentally almost alike.

In diabetes the amount of carbohydrate should be reduced, protein maintained or lowered, and fat allowed only in such an increased quantity as will produce efficiency.

The basic diabetic diet consists of four saucers of 3 to 5 per cent vegetables, each portion weighing 150 grams containing approximately 5 grams of carbohydrate, because these furnish bulk; three very small oranges, 300 grams; 240 cubic centimeters (half a pint) of cream of 20 per cent butter fat strength; two eggs; four crisp strips of bacon (30 grams); one small portion of meat (60 grams), and an ounce (30 grams) of butter. If the patient can keep sugar free on this diet, oatmeal, 15 to 30 grams dry weight, can be added. Few diabetics can tolerate more carbohydrate. If less bulk is desired two saucers of 10 per cent vegetables can be given instead of four saucers of 5 per cent. If there is diarrhea it is well to remember that a Uneda biscuit contains

TABLE 1.
The Basic Diabetic Diet

Food	Quantity	Composition		
		Carbohydrate grams	Protein grams	Fat grams
3-5% vegetables	4 saucerfuls, each weighing 150 grams	20	10	0
Oranges	3 small, each 100 grams	30	0	0
20% Cream	Half pint, 240 c. c.	8	8	48
Eggs	2	0	12	12
Bacon	4 crisp strips, 30 grams cooked	0	5	15
Meat	A small portion, 60 grams	0	16	10
Butter	3 small portions, each 10 grams	0	0	25
		—	—	—
		58	51	110

TABLE 2
Diabetic Food Card

Foods arranged according to content of Carbohydrate; also quantities of Carbohydrate, Protein and Fat in Certain Foods:

Water, clear broths, coffee, tea, cocoa shells and cracked cocoa can be taken without allowance for food content
FOODS ARRANGED APPROXIMATELY ACCORDING TO CONTENT OF CARBOHYDRATES

		5%	10%	15%	20%	
* Reckon average carbohydrate in 5% veg. as 3%—of 10% veg. as 6%						
		1%-3%	3%-5%	10% *	15%	20%
VEGETABLES (fresh or canned)	Lettuce	Tomatoes	Str. Beans	Green Peas	Potatoes	
	Cucumbers	Brussels	Pumpkin	Artichokes	Shell Beans	
	Spinach	Sprouts	Turnip	Paranips	Baked Beans	
	Asparagus	Water Cress	Kohl-Rabi	Lima Beans	Green Corn	
	Rhubarb	Sea Kale	Squash	very young	Boiled Rice	
	Endive	Okra	Beets		Boiled	
	Marrow	Cauliflower	Carrots		Macaroni	
	Sorrel	Egg Plant	Onions			
	Sauerkraut	Cabbage	Green Peas			
	Beet Greens	Radishes	very young			
	Dandelions	Leeks				
	Swiss Chard	String Beans				
	Celery	very young				
	Mushrooms	Broccoll				
		Artichokes				
FRUITS	Ripe Olives (20% fat)	Strawberry's	Raspberries	Plums		
	Grape Fruit	Lemons	Currants	Bananas		
		Cranberries	Apricots	Prunes		
		Peaches	Pears			
		Pineapple	Apples			
		Blackberry's	Blueberries			
		Oranges	Cherries			

1 gram protein, 4 calories.
1 " carbohydrate, 4 "
1 " fat, 9 "
6.25" protein contain 1g. nitrogen.
1 kilogram=2.2 pounds.
30 grams g. or cubic centi-
meters c.c. =1 ounce.
A patient "at rest" requires
25 calories per kilogram

30 Grams 1 oz.	Carbohydrates	Protein	Fat	Calories
Contain Approximately	G.	G.	G.	
Vegetables 5% . . .	1	0.5	0	8
Vegetables 10% . . .	2	0.5	0	10
Shredded Wheat (3 triscuits)	23	3	0	104
Unseeded, two . . .	10	1	1	53
Potato	6	1	0	28
Bread	18	3	0	84
Oatmeal, dry wgt. . .	20	5	2	118
Oysters, six	4	6	1	49
Milk	1.5	1	1	19
Meat (cooked, lean) .	0	8	5	77
Fish	0	8	0	24
Chicken (cooked lean) .	0	8	3	59
Egg (one)	0	6	6	78
Cheese	0	8	11	131
Bacon	0	5	15	155
Cream, 20%	1	1	8	62
Cream, 40%	1	1	12	116
Brazil Nuts	2	5	20	208
Butter	0	0	25	225
Oil	0	0	30	270

5 grams of carbohydrate, the same amount of carbohydrate as one saucer (150 grams) of the 3 to 5 per cent vegetables. On the other hand, if still more bulk is desired, use lettuce in preference to other 5 per cent vegetables, or replace the orange with twice the quantity of grape fruit. It is obviously easy to increase or decrease the protein by the addition or subtraction of meat and to add 48 grams of fat by replacing the medium 20 per cent cream with heavy 40 per cent cream, or by increasing butter or bacon or by the addition of oil.

If my patient is sugar free I do not fear acidosis if the protein is 1 gram per kilogram body weight and the grams of fat even three times the grams of carbohydrate. If such a diet does not furnish enough calories

and more fat is required the protein can be lowered to two-thirds of a gram body weight and then the fat may be safely raised to four and if necessary to five times the grams of carbohydrate without a dangerous anti-ketogenic ratio.

High caloric diets I still avoid particularly when such diets have their basis chiefly in fat. Outside of a hospital, patients are not so skillful in avoiding coma as in hospital wards physicians are in balancing ketogenic anti-ketogenic ratios. We must not forget the useful lessons Dr. Allen taught us with under-nutrition. Thanks to him my average diabetic gained a year or more of life, and thus was able to revive with insulin. Over-feeding is largely responsible for the onset of diabetes, makes the diabetes more severe and frequently precedes coma. When you prescribe fat, prescribe it for efficiency and comfort, not for obesity and coma. If you must make the quantity of fat great, be sure to make the quantity of protein small.

Insulin. The good accomplished by the widespread use of insulin is far greater than the harm. The cases of coma saved exceed the cases of fatal hypoglycemia or of coma caused by the careless omission of insulin. It would be as wrong to withhold insulin from a case of diabetic coma as to neglect to use antitoxin in a case of diphtheria. I approve of the general use of insulin by the general practitioner even in diabetes of rather moderate severity. In this way he will become accustomed to the drug and its dosage.

The statistics of the Metropolitan Life Insurance Company support this idea. Of 500 fatal cases of diabetes, less than one half (45.4 per cent) received insulin at any time and of 58 cases in which coma was assigned as the sole cause of death, there were 21 who were not given a single dose of insulin.

I feel more encouraged about the usefulness of insulin this autumn than I did a year ago. I am seeing a constantly increasing number of cases of severe diabetes who are in good condition and yet taking less insulin than formerly. The number is still too few I will allow, but if a few diabetics, known to be severe, can do this, there is no reason why those with a milder type

of the disease should not be as successful. The diabetic who is able to reduce his insulin is the diabetic who is absolutely faithful to diet and restricts gain in weight to a moderate degree. Insulin will not save the careless diabetic.

This improvement in ability of the diabetic to tolerate carbohydrate is doubly important. It can be interpreted as evidence of a regeneration of the islands of Langerhans or perhaps more conservatively with Campbell as "release of a latent tolerance submerged by previous overwork of the pancreas." If the pathological evidence of regeneration continues to back up the clinical findings the demonstration will be complete. In the second place, this reduction in the need for insulin is important, because patients may be receiving too much insulin for the carbohydrate in the diet and be unaware of it. Particularly is this apt to occur in children. Their diabetes may be so severe that without insulin, sugar shows immediately, yet by following the dose to which they have been accustomed for months the blood sugar may fall, as in three recent instances, to 0.08 per cent, 0.06 per cent and even as low as 0.03 per cent, and yet the usual symptoms of an insulin reaction be veiled and overlooked. In one such case diplopia was the sole symptom and in another, Jack R., who had a blood sugar of 0.03 per cent at 11 A. M., his alert mother noted but a slight pallor and weariness. Blood sugar analyses here are of the greatest value, even imperative. Formerly we were on the watch to see if a diabetic was getting worse, today we must be on watch to detect his getting better.

The variability of the proper dosage of insulin in any given case under different conditions cannot be too strongly emphasized. A patient enters the hospital in a coma and receives 170 units the first day, but three weeks later is discharged with a daily dose of 10 units. Diabetes must be recognized as a labile disease. With an infection it grows more severe and more insulin is needed, with increased exercise more carbohydrate is burned and less insulin is required. Little Jack K's Sabbath afternoon walk of a couple of miles, which was his equivalent

of a Marathon run, affected him as did the real Marathon run by those Boston athletes who suffered and were defeated because of hypoglycemia. This adjustment of insulin dosage to diet, to infection, to exercise, particularly in a child, is not an easy task. We have much to learn about it. This is one of the reasons why I advocate the widespread employment of insulin by the general practitioner. It is desirable for him to become acquainted with its action in moderately severe diabetics in order to prescribe it intelligently in severe diabetics.

Begin with small doses of insulin. One of my cases had a reaction with 1 unit and recently at 15½ hours after the last dose of 5 units another patient had a reaction.

The average quantity of insulin taken by a group of my patients who had received it for an average period of a year and a half was 20 units. I do not recall a patient among perhaps a thousand given insulin who habitually uses over 50 units and my severest diabetic takes but 35 to 40 units. A good many inject but 5 units once a day and a considerable number have found this quantity unnecessary, because the diet is adequate. Many times when insulin has been increased, I find it caused by an improper balancing of the diet due to ignorance or laziness, or to direct breaking of diet.

When one has a long standing case of diabetes to treat and is in a hurry, it is very easy for a doctor to be tempted to neglect the patient and say—take more insulin. Then too, remember that it is from the first 10 units the patient gets his money's worth of carbohydrate. Each additional 10 units yields lesser and lesser dividends.

The period which lapses between the injection of insulin and the meal can be advantageously employed in resting. Complete relaxation twice a day does a diabetic worlds of good, as well as his family, for the rest makes him better natured. The more complete the relaxation, the better for all concerned. The period may be prolonged to 45 or 60 minutes before the morning meal in the severe cases.

The Site of Injection. Harm results if the insulin is given frequently in the same situation. It is less effective. This is demon-

strable, because a reaction will occur if the identical dose is injected in another spot. There should be a method in its employment. I tell my patients to inject it into the right leg in the morning and into the left leg at night; along a line just to the inner side of the thigh the first week of the month, along the middle line of the thigh the second, along a line an inch outside the third week and an inch further out the fourth week. In this way no spot receives insulin twice in a month.

Insulin Keeps. One of my patients chanced to leave a bottle of the old H insulin in the upper drawer of his dressing table. Eleven months later he used this substituting it in equivalent amounts for the U insulin now sold. He found that 21 units of the H insulin corresponded exactly with the 15 units of U insulin and you know this agrees with the theoretical values. This proof of the lasting qualities of insulin is of much significance. It shows that a physician can keep insulin in his office and in his bag in anticipation of any diabetic emergency. In fact every practicing physician should carry insulin in his bag or have it in his office, providing he cannot obtain it from a drug store in the immediate vicinity. A dose of insulin administered early will accomplish better results than many doses given later.

Blood sugar tests are not always easily obtained. Furthermore they can never be as frequently obtained as a knowledge of the condition of the patient is desirable. Then too they show what is taking place only at a single instant of time. For this reason we employ at the New England Deaconess Hospital single specimen tests of the urine and to systematize them collect in four periods, F (forenoon) from 7 A. M. to noon, A (afternoon) from noon just before eating to just before the evening meal, E (evening) from before supper until retiring and N (night) from then until 7 A. M. In this way it is possible to adjust diet and dosage. If all four specimens show sugar there is too much food or too little insulin, if the forenoon specimen is positive less carbohydrate should be given at breakfast, or more insulin at an earlier period, and so

too for the afternoon and evening specimens. If the night specimen shows sugar an evening dose may be required instead of a dose before supper or rarely—perhaps 5 cases in 1,000—four doses a day are needed.

The hospital stay of a diabetic has now been shortened to an average period of 10 days. This is done because of insulin and education. With a few small doses of insulin combined with an undernutrition diet for the first few days after entrance the patient becomes promptly sugar free. His diet is then built up and he is discharged on a diet, too low rather than too high, and with or without insulin. Experience alone determines the size of the diet for the individual, tables do not. If Mr. Jones goes to Dr. Smith for advice he expects Dr. Smith to treat him as an individual and not in a wholesale manner.

A shortened hospital stay is only safe if education is increased. The diabetic must go to school or have a tutor. Class teaching can be made effective and saves expense and time. The patient needs a school book. He must be given a lesson; he must recite and before discharge must be taught as much as he can appreciate and utilize. Patients can be utilized for teachers.

Coma. Seven successive cases of coma have recovered in as many successive weeks at the New England Deaconess Hospital under the care of my associates, Dr. Howard F. Root and Dr. Dwight Sisco. We attribute this largely to the promptness with which treatment was started and for this we are indebted to the family physicians who have sent them in. In several instances they have given the first 20 units of insulin before the patient left his home and thus one or two hours have been saved. An early dose is essential. An hour saved at the beginning of treatment of coma is worth several hours a half a day later. Great care has been taken to avoid exhaustion or exertion on the part of the patients when they have been sent into the hospital. In other words heat and strength have been conserved. Once in the hospital insulin in 20 unit doses every hour is usually injected subcutaneously and as a guide a permanent

catheter is inserted in the bladder and the bladder emptied and the urine tested for sugar before each subsequent dose. As the sugar decreases from a red reaction to a yellow reaction the insulin is decreased by injecting it every two hours or in 10 unit amounts, and further reduced to 5 units every 2 to 4 hours if the test is green. Of course no case is treated exactly like another or exactly like this schedule. Blood sugar tests are done too, but as yet not before each dose of insulin. Mr. Keifer, a former teacher of Chemistry, who is now in the third year class of the Harvard Medical School and supervises much of our laboratory work, has devised a simple method for testing blood sugars at the bedside and Dr. L. Millard Smith, who formerly helped me in a similar capacity, I understand has also nearly perfected such a method. Evidently within a few months blood sugar methods will be easy for all and at trifling cost.

The injection of salt solution subcutaneously we consider of the greatest importance in order to afford sufficient liquid for the patient. Most coma cases receive two "subpectorals" and one of the severe cases received four and when she recovered never knew she had received any.

All the patients are kept warm. All have an enema and usually salt solution by the rectum. All are given caffeine. Most are given gastric lavage though this is done with great care, because a visitor to the clinic reported a death from the process in another hospital.

There is a reason for every case of diabetic coma, and this the doctor will always find. The cause is overeating, usually of food fat, though sometimes of body fat. When a diabetic has an infection his metabolism is stimulated and he eats more of his body fat and thus coma easily arises. Warn your diabetic against both kinds of surplus food. Instruct him (1) to telephone you if he feels ill, (2) to go to bed, (3) to get someone to wait upon him, (4) to drink hot liquids, a cupful an hour, of water, coffee, tea, broth or water oatmeal gruel, (5) to keep warm and (6) to take an enema. If

you train your diabetic thus he will be in comparatively little danger of fatal acidosis.

It is always worth while to work over a case of diabetic coma. An infant or an old woman may recover. Frequently the case proves to be a recent and a mild diabetic who has ignorantly and innocently gone astray.

Gangrene. Gangrene in a diabetic should be considered an emergency and for it there must always be made a vacant hospital bed. During 1923 in four Boston hospitals there were 75 diabetic deaths; of these one half were due to gangrene and infections of the lower extremities. Train your patients to dodge gangrene, but if it does occur, don't procrastinate. In arriving at a decision as to whether a peripheral amputation in contrast to an amputation of the leg or thigh is permissible, consider the condition of the vessels, and the involvement of bone, utilizing evidence furnished by x-ray, note the pulsation of the dorsalis pedis and post tibial arteries, the recent progress of the lesion, the degree of pain, remember the rarity of recovery of the foot after removal of the second and third and fourth toes and finally the expectation of life of the patient and the proportion of it which would be spent in undergoing medical as compared with surgical intervention. The patient deserves the best surgical advice at the earliest possible moment, but he should be made to realize that calling in a surgeon does not mean amputation. With the mild antiseptics of the Dakin type, the Buerger methods of exercising the blood vessels and the help of the ultra violet rays surprisingly good results are obtained, but they demand time and require money. If operation is decided upon, the surgeon should set the hour and to it the medical treatment of the diabetes must conform. Don't demand or often expect the urine of the patient to be sugar free just before or after operation. With a diet of 15 or 20 calories per kilogram body weight, even without insulin, and still more now when insulin is available, usually he will convalesce satisfactorily.

DISCUSSION

John G. Ryan, Denver: I feel a little reluctant about attempting to discuss such a wonderful presentation of the modern dietetic management of diabetes, together with the practical application of insulin therapy, as you have heard this afternoon. Dr. Joslin has presented the subject in such a thorough and practical manner as to be within the easy grasp of every practitioner, and any attempt to enlarge upon it would merely detract from the value of what has already been said.

Insulin has taken its place in modern medicine among the greatest discoveries of the age. It is a remedy of priceless value, but its value can be determined only in terms of proper application to each case, according to his individual needs. I was interested in what Dr. Joslin had to say about coma. In some of his writings in pre-insulin days, I believe he makes the statement that coma and acidosis are accidents which never should be allowed to happen, and when a case goes into coma, or severe acidosis, while under the care of a physician, it is the fault of the doctor. I may be putting that too strong, but I think that is approximately correct. I was interested also in the statement that diabetes under proper dietetic management, plus the use of insulin can attain almost a normal life expectation. The importance of weight has been emphasized, and in checking over ten of my cases this morning, I find that, as Dr. Joslin said, I have about a ton of weight. They are all up around 200 pounds each. The importance of diet is to be emphasized in connection with the fact that so many of the milder cases can be put upon a full maintenance diet and be made to maintain their body weight and carry on without the use of insulin. Many patients object to the use of it for one reason or another, on account of the price or the inconvenience. They object to the hypodermic needle, and so on, and are very appreciative when they can be put upon a basal caloric diet, properly balanced, and thus be enabled to carry on and live comfortably without insulin. I have at least six or eight cases that have for the past year not varied more than two or three pounds in weight, are persistently sugar-free and still doing nicely without insulin. In my limited experience, in what few cases I have been treating, I have been following the plan of allowing one gram of protein per kilo of body weight, and any patients who do not have a tendency toward obesity, two and a half grams of fat per kilo, and the remainder in carbohydrates, thus giving a fatty-acid glucose ratio of one and a half, or one and seven-tenths to one. By using the simple group-diets as outlined by Wilder of the Mayo Clinic and Mosenthal of New York together with the table of food values so conveniently arranged by Dr. Joslin, the patient is able to select a great variety of foods, and where we are without the aid of clinics and means of instruction it simplifies the problem by giving them these group-diets.

I have followed Dr. Joslin's teachings for several years in this particular field of work, and I believe that it is fitting, on behalf of the State Society that we express our thanks and sincere appreciation for this helpful message that he has brought to us.

Dr. Joslin, (closing): In the paper this afternoon, I spoke of the diabetic's recovery with 170 units, and discharge three weeks later with 10 units to guard against a mistake, and I would not want anyone to think that the patient had 170 units given at a single dose. The patient had per-

haps twenty units an hour, in eight doses; that is, in the first twenty-four hours he had 170 units. Second, about the doctor being responsible for death with coma; In 1922 before the Massachusetts Medical Society I gave a lecture, and in that I felt justified in saying, before insulin was discovered, that coma, diabetic coma, was needless. I felt so then and I think so now; but when a patient dies with coma, I do not mean that the doctors should be held responsible. I have more than one thousand diabetics a day, and if I were responsible for two-thirds of those deaths, I would not sleep so well. But I think this is true, that we have gotten to the stage where we know that diabetic coma has a cause, and that it is needless. If the doctor has a show at it, he can stop it. One example: Petran, who is one of the best men in Europe today, may make a mistake of a year or two, but it is almost fourteen years—perhaps it is ten years, that he has not had a death from diabetic coma in a hospital where the patient has been there for just a few days. They might have come in in pre-insulin days and died, but if he had a show at the patients for a few days after they had gotten to the hospital, none of them died of coma. Many of our diabetics in the East are poor, and they are willing to have one person teach another. It is a little harder to have one rich diabetic teach another rich diabetic, but the way I got around that last year was this—I had a couple of girls twelve and thirteen years old with severe diabetes. It was a little difficult to control them. One had ten per cent and one eight per cent sugar, and every once in a while we had a little trouble. I ended it by moving them to another hospital, and in a lesson on diabetes I told my patients about them in order to keep them straight.

Dr. Grant: What progress has been made in the production of insulin so that it can be given without being destroyed by the secretion?

Dr. Joslin (continuing): Insulin must be given subcutaneously. Insulin given by the mouth does not do good.

Dr. Grant: I understand that at the present time, but I understand also that they are making some investigations.

Dr. Joslin (continuing): Oh, yes.

A Voice: You say that diabetes is 15 times as common after 45 years of age.

Dr. Joslin (continuing): Because they are fat. Nineteen out of 20 are fat after 45. Only a small number are fat before 45.

President Sewall: We will all agree that Dr. Joslin can go home with a feeling that he has done us good, that we are immensely glad to have seen him. We will be glad to see him again. I will look forward to the publication of this paper in Colorado Medicine, and I can say that it will be a little handbook for us and our patients.

PERSONAL LIBERTY

There are those who assert that a person's disease is exclusively his own concern, and that his employment of an ignoramus to treat it, or his refusal to treat it at all, is equally so. But, since disease, though it originates in the individual person, is transmitted by him unwittingly to other persons without their knowledge or consent, and since in many ways it directly jeopardizes the happiness of other persons, and impairs the state itself, a person's disease manifestly is not exclusively his own concern, but is also the concern of every other person and of the state.—Harry Eugene Kelly.

THE IMPROPRIETY OF CERTAIN PROCEDURES IN THE CARE OF DIABETICS

A Plea for Maintenance of Approximate Normal Blood Sugar in Diabetics*

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Progress in the treatment of diabetes has been so rapid and so great during the past two years that it is with difficulty that most of us keep in touch with all of the newer thoughts and methods associated with this advance. While progress seems to be made in every branch of investigation and treatment of this common disease, there are nevertheless three ideas relating to methods of diagnosis and treatment which, it seems to the writer, have been accepted without question and without due consideration of the facts involved.

It is with the idea of calling attention to the impropriety of continuing certain of these present procedures that your interest is directed to the following points:

First, in attempting to determine the tolerance for any type of food, it is customary to depend upon the appearance of sugar in the urine as a guide to that tolerance; second, the fear that maintenance of normal blood sugar level in diabetics taking insulin will cause or allow to develop certain physical conditions commonly spoken of as "shakes", which may even endanger life itself—or expressed in other words, the belief that diabetics taking insulin are not safe unless their blood sugar is maintained at a level higher than normal; and third, the present tendency to allow diabetics to show a trace of sugar in the evening specimen of urine.

I take the liberty of stating that these three ideas are wrong in theory and practice, and that the two latter are in the long run certain to do harm rather than good.

In giving my reasons for making the above statements, I must make clear certain facts upon which my beliefs are based:

First—The consideration of what constitutes normal sugar content of blood in the healthy individual. Most authorities are agreed that blood taken from a normal sub-

ject, who has been without food for at least four hours, will show sugar present to the extent of 0.1 per cent, or more conveniently stated, 100 mg. sugar per 100 c.c. blood. H. Gray¹ states "that .11 per cent is the highest fasting value which may be called normal"; while Victor C. Myers² states that the normal blood sugar by the Benedict Method is from 90 to 120 mg. per 100 c.c. blood taken in the morning.

Second—The normal threshold value of sugar excretion is 160 to 180 mg., according to Myers and other authorities, but the important point now to consider is the fact that in nearly all diabetics the threshold of sugar excretion is raised far above normal, as is well illustrated in the following cases:

Mrs. P., aet. 30, was repeatedly found to be free of urinary sugar and when later sugar was found in urine, the blood sugar was found to be 434 mg. After suitable treatment, sugar disappeared from urine but the blood sugar was then found to be 378 mg.

Mrs. H.—No sugar in the urine, but with a blood sugar of 404 mg.

Mr. A., aet. 60, passing sugar in urine—had blood sugar of 444 mg. Forty-eight hours later, altho no sugar appeared in urine, blood sugar was still 277 mg.

Mrs. E.—Had blood sugar of 254 mg. without glycosuria.

Mr. H.—Was sugar-free although his blood sugar was 217.

The literature is full of similar examples of high threshold points for sugar excretion.

Your attention is invited to the fact that all such cases are carrying from two to four times more sugar in the blood than is normal.

I digress at this time, to call attention to the fact that in the above cases and all others cited by me the blood sugar determinations were invariably made after a fourteen-hour fasting period and all were made in the same laboratory, thus securing greater uniformity in results.

Regarding the first mentioned procedure, namely, that of using the appearance of sugar in urine as a guide to carbohydrate tolerance, the following must be considered: Given a case of diabetes, which after a

*Read at the annual meeting of the Wyoming State Medical Society, June 17, 18, 19, 1924.

period of starvation shows normal blood sugar of 90 to 100 mg., food is then furnished in increasing amounts until sugar appears in the urine, then if the threshold for sugar excretion for that patient conforms to the rule and is two to three times higher than normal, our tolerance test does not take into consideration the fact that the blood is holding in solution two to three times more sugar than is normal, which means that the true tolerance point was passed long before sugar appeared in the urine. For this reason, I am opposed to this type of test and much prefer one such as recently outlined by Brill³ and advocated by Myers.

The second subject for consideration, namely, the fear that the appearance of sweating, nervousness or tremor is an indication that blood sugar has been reduced to the danger point, should be disposed of quickly. It is clearly understood that diabetic patients using insulin can so adjust diet and insulin dosage as to keep the blood sugar comparatively low, and it is equally well understood that if blood sugar is thus brought to or slightly below normal, certain discomforting symptoms, such as above noted, make their appearance.

To my notion, the dangers associated with appearance of the "shakes", as commonly called, are entirely overestimated. In my experience these sensations have proved to be neither discomforting nor serious, and I feel that it is really of much clinical value to have such a demonstration of low blood sugar available to patients. It is, however, desirable and necessary that all patients first experience these reactions while under hospital care, in order to avoid unnecessary and extreme reactions. My records show ten cases which have developed definite symptoms of low blood sugar, but not one of these has suffered any ill effects from this, and, in fact, several make use of this sign as a guide to the amount of insulin required from time to time. Sometimes sweating is the first definite symptom—in others, sleeplessness, while most frequently a mild sensation of shaking is the guide. All patients learn to recognize the symptoms early and easily and all are instructed as to the treatment.

You may be interested to know that these symptoms often appear while blood sugar is still over 100 mg., such as 117-120 or even 132 mg.

I do not deny, however, that the more severe reaction, namely, coma, might be a very serious matter and I have seen two cases not included in the above mentioned cases in which coma did develop because both patients absolutely ignored the earlier warnings of their feelings and did nothing to counteract the effects of the insulin, although there was ample time in which to do this.

Before discussing the third topic, namely, the present tendency to allow diabetics to maintain a blood sugar level which is constantly above normal, it is necessary to review briefly some of the knowledge recently gained relative to the pancreas, its structure and functions.

It has long been supposed that the Islands of Langerhans in the pancreas were directly concerned with the elaboration of some substance which played an important part in the metabolism of sugar, but it remained for Banting and his co-workers to prove, beyond any question of doubt, that the substance formed by these islet cells was absolutely indispensable to the body function of utilizing sugar. These islets are distinctly different from the acinar tissue of the gland and much importance is attached to the redevelopment of islet tissue as demonstrated in experimenting on rabbits.

J. J. Bentley⁴, of Chicago, describes experiments by Clark, showing that after ligation of the pancreatic ducts of rabbits, degeneration of acinar and islet tissue occurs, followed by development of new tissue consisting chiefly, if not entirely, of islet tissue. McLeod⁴, quoting the work of Bentley, says: "From the tubules, acini and islets are each separately developed and the islets can be seen in all stages of development". McLeod goes on to say that this "suggests regeneration of islet tissue after a great part has been destroyed by disease, as diabetes", and later says: "In this disease, there is no doubt but that much of the islet tissue is destroyed and that destruction of the remainder is being accelerated by the over-

strain it is put to in order to produce enough of the hormone insulin."

McLeod here calls attention to one of the most important factors concerning degeneration of islet tissue. I wish to enlarge upon this idea by adding the following, namely: That normal islet tissue is stimulated to activity as long as blood sugar concentration is above the level of 110 mg., and that when the blood sugar level is above 110 mg., there is no such thing as physiological rest, repair, or regeneration of islet tissue, since it is necessarily active at all times. The eventual outcome of such a condition of high blood sugar content is obvious—even though insulin be used there will still be the slowly progressive degeneration of islet tissue from overstimulation with eventual fatal outcome, unless the blood sugar level is so low that the pancreas has a normal amount of rest.

I have in mind cases in my own practice which illustrate both sides of this question. In passing, it is worthy of note that many patients volunteer the statement that their bodily sense of well-being is greatly improved as soon as their blood sugar is maintained at a normal level. I have also records of patients who, on a fixed diet of 1,500 calories, have gained in weight as soon as sufficient insulin was given to bring down blood sugar to normal level.

Mr. A. was very ignorant of the value and necessity of maintaining a strict diet and although taking insulin, was occasionally showing sugar in the urine. He was not doing very well but was finally induced to adhere strictly to diet. He then developed some tremor and his blood sugar was found to be 120 mg. After this occurred, he actually gained a pound in weight in one week on a 1,200 calory diet. Later, he increased his diet to 1,800 calories, worked hard on a farm and gradually reduced the amount of insulin taken.

Mrs. C. had been taking insulin some time before coming to me—was eating six or more slices of whole wheat bread a day—otherwise on restricted diet. She was using 14 units of insulin daily and weighed 85 pounds, with a blood sugar of 174 mg., showing 1.5 per cent sugar in urine. She was put upon a 1,260 calory diet, increasing insulin gradually until 34 units were used daily. She then noticed tremor and slight sweating, and soon gained 12 pounds in weight. Diet was increased but not the insulin, and finally she reduced the dosage of insulin from 34 to 20 units a day.

Conclusions

The threshold of sugar excretion in diabetes is variable but nearly always above that of normals; therefore, any tests based

upon the appearance of sugar in the urine are inaccurate and calculations based thereon are misleading.

The mild symptoms of low blood sugar, such as slight sweating or tremor, are easily recognized by patients, are easily controlled, and may serve as a valuable clinical test for low blood sugar without danger to the patient.

Blood sugar content above 110 mg., calls for activity of islet cells of the pancreas. Blood sugar constantly above normal overstimulates and finally exhausts islet function. It is, therefore, bad practice to allow even a trace of sugar in the urine at any time in diabetes.

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Gold that buys health can never be ill spent.—John Webster.

Poverty and a cough cannot be concealed.—Yugoslav Proverb.

Beware what you set your heart upon, for it surely shall be yours.—Emerson.

The New York State Department of Health made 930 shipments of health films during 1923.

During the past year the American Red Cross was the relief agent for 192 disasters the world over.

The loss to industry through eye accidents is estimated at more than twenty-three million dollars yearly.

According to the National Automobile Chamber of Commerce, 8,100 persons were killed by automobiles during the first half of 1924.

Shell fish, because of their high iodine content, are both a preventive and cure for goitre, according to the United States Fisheries' Association.

"Prevention," the enterprising little publication of the Department of Health of New Brunswick, has a circulation of 5,000 copies, one-third of which are printed in French.

In a recent survey of absences of children from school in Washington, D. C., it was found that over 70 per cent were due to medical problems, one-fourth of them from colds alone.

THE RESULTS OBTAINED WITH TRYPARSAMID IN A GROUP OF FIFTY CASES OF NEUROSYPHILIS*

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DENVER, COLORADO

This paper presents a brief survey of the results obtained in treating fifty cases of neurosyphilis with tryparsamid. The patients were under care at the University of Colorado Dispensary, at the Denver General Hospital, and at the State Hospital at Pueblo. Thirty-five of the fifty patients had general paresis. The remaining fifteen had various forms of neurosyphilis—such as tabes, spastic paraplegia, hemiplegia, cranial nerve palsies, etc.

The full course of treatment consisted of sixteen intravenous injections of tryparsamid, given at intervals of a week. The initial dose was one gram, the second dose two grams, and the remaining fourteen doses three grams. During treatment the patients received a quarter of a grain of protoiodide of mercury by mouth three times a day.

Our patients were warned of the various ocular symptoms reported from the use of tryparsimid, and they accepted treatment with full knowledge of the risk. In the case of paretics, consent was obtained from the relatives, as it was felt that the decision should not be left to the patient themselves.

Results of Treatment

Paresis: Among thirty-five paretics, six died during the course of treatment. Nine were worse after treatment than before. Three of them developed serious eye symptoms, which will be discussed later. Ten of the thirty-five patients showed no material change following treatment. The remaining ten improved. One of them improved sufficiently to be paroled. Another gained thirty-six pounds in weight and is mentally eligible for parole, if improvement persists. Another, who was a bed-patient on commencing treatment, improved sufficiently to work in the hospital grounds. Three improved sufficiently to have insight into their previous mental condition. Others

showed minor grades of improvement, recorded as "less delusional", "less noisy", "more alert", and so on.

Thus we have in this group of thirty-five paretics, ten patients improved, ten unchanged, nine worse, and six dead.

We should probably find about the same results in any similar group of thirty-five paretics not under treatment; for the course of paresis is notoriously variable, and is marked by spontaneous remissions and exacerbations,—it is a common thing for patients to recover one week and die the next.

Cerebrospinal Syphilis: The results with the fifteen cases of cerebrospinal syphilis were little different. Three patients died during treatment. Six showed no change whatever. Of the remaining six, two showed moderate improvement, and four slight improvement. Improvement can be expressed in various terms: "fewer lancinating pains", "better control of the bladder", "less diplopia", "fewer attacks of gastric crisis", "increased weight and strength", etc. One patient in this group developed serious eye symptoms, which will be discussed later.

Serological Changes

The serological changes in our fifty patients were about as varied as the clinical changes, though there was no correlation, case for case. Patients that showed the most improvement by laboratory tests were very little bettered in health; on the other hand, those that were bettered in health did not generally show serological improvement.

Surveying our patients as a group, we can say that increased counts in the spinal fluids were uniformly reduced to normal. In general, the amount of globulin was reduced, though in one or two instances it was increased. The colloidal gold curves were little affected. A few Wassermann reactions were stronger after treatment, but in a larger number the reaction was

*Read at the Annual Meeting of the Colorado State Medical Society, October 7, 8, 9, 1924.

weaker. In four cases the spinal fluid was reduced to negative; three of these four patients were tabetics. Five bloods were reduced to negative, all of them in cases of paresis.

Eye Symptoms

During treatment, six of the fifty patients complained of transient subjective eye symptoms, such as dazzling, dimness of vision, a film before the eyes, snowstorms on closing the eyes, a yellow patch on looking at white objects, flickering of the electric lights, etc. The symptoms were transient, and unaccompanied by objective changes in vision or changes in the eye-grounds. In all these cases treatment was temporarily interrupted and was resumed when the symptoms disappeared.

In four other cases there were similar ocular disturbances, which were subsequently followed by serious visual impairment. In one of these cases the symptoms were those of toxic amblyopia; in the other three the symptoms pointed to optic atrophy.

Toxic amblyopia occurred in a young man of thirty-one, who had advanced spastic paraplegia, which confined him to a wheel-chair. He was one of our early patients, and received an initial dose of three grams of tryparsamid, instead of the one-gram initial dose which we adopted later. Vomiting occurred a few hours after treatment. On the following day he complained that things looked gray and hazy, and on the next day he was unable to see. Eight weeks later, there having been no return of vision, he wished to continue treatment, and was given a second injection, consisting of a gram and a half of tryparsamid. This treatment was followed by acute orchitis. No further treatment was given, and he died a month afterward.

This patient had no objective disturbance of vision before treatment, although his optic nerves were pale. Apparently the central fibres of the nerves had escaped destruction by the syphilitic process, but proved vulnerable to a single dose of tryparsamid.

The second patient, a paretic, began to complain after his eighth treatment that he could not see clearly. Examination showed

no disturbance of central color vision, or impairment of visual acuity. He was able to write letters seven weeks after first complaining of his sight. Vision then became rapidly impaired, and at the end of the ninth week was reduced to light perception. In this case treatment was discontinued when the patient first complained of ocular symptoms, but blindness ensued from optic atrophy. Prior to treatment, the optic discs were normal and the pupils sluggish. With loss of vision the discs became pale and the pupillary reflex disappeared.

The third patient complained, after his ninth treatment, of dazzling and of not seeing well in shadows. He was able to read the newspaper, and his central color vision was normal. Treatment was discontinued, but vision failed three weeks later, and in the course of two or three days was rapidly reduced to light perception. Before treatment the pupils were sluggish and the eye-grounds normal. The discs later became pale, and the pupillary reflexes disappeared.

The fourth patient to suffer visual impairment was a bed-fast paretic with pallid discs, who was sufficiently demented to be unable to co-operate in examination. After the thirteenth treatment he appeared not to see well and was soon unable to feed himself. A few weeks later he could not recognize the attendants, and his vision seemed to be reduced to light perception. He died seven weeks after treatment was discontinued.

Thus we have, among fifty patients, four cases of virtual blindness, and six cases of subjective visual disturbance unaccompanied by actual impairment of vision. Two of the patients to suffer blindness had pale nerve heads before treatment. All other patients with ocular symptoms had normal eye-grounds.

There were five patients with pale optic discs, who suffered no visual disturbance, either subjective or objective. Two patients had slight pallor of the discs following treatment, but suffered no visual impairment.

Conclusions

A year ago tryparsamid was a new and

promising remedy for neurosyphilis. Today it can be more accurately evaluated. For ourselves we would appraise it as a form of therapeutic dynamite, notable chiefly for its dangers. Its benefits seem few, though of course they might be greater with more protracted treatment. The test to which we put tryparsamid was admittedly a severe one, for most of our patients were in an advanced stage of the disease. Yet the results were disappointing even with the early cases.

Perhaps the tryparsamid is not altogether to blame for the visual disasters that befell our patients. Optic atrophy is one of the common tokens of neurosyphilis, and it would be comforting to attribute it in this instance to the disease. Nevertheless, one cannot readily escape the conviction that the tryparsamid is largely responsible for the adversities encountered.

In spite of the dangers of tryparsamid, it would not be too desperate a remedy, if a sufficiently large proportion of patients were benefited. All paretics are foredoomed to death, and the average duration of life after admission to the State Hospital is but fourteen months. With death so imminent, desperate measures are justifiable. It is our belief, however, that better results are to be obtained in paresis, and certainly in other forms of neurosyphilis, when patients are treated with mercuric iodide, and neosalvarsan, and are given liberal spinal drainages three or four times a week. Such treatment is not only more beneficial, but is less dangerous.

In conclusion, we wish to express our thanks to the Rockefeller Institute, which supplied tryparsamid for this research. For co-operation and help in the clinical work we are much indebted to Dr. F. H. Zimmerman of the State Hospital and to Dr. Louis Green, formerly of the Denver General Hospital.

Summary

Fifty patients with paresis, tabes, and other forms of neurosyphilis were given sixteen injections of tryparsamid at weekly intervals. Sixteen patients improved; sixteen showed no material change; nine were worse; and nine died during treat-

ment. Four suffered visual impairment amounting virtually to blindness.

DISCUSSION

G. A. Moleen, Denver: This presentation clearly indicates the eagerness with which clinicians are searching for treponemicidal remedies. The Rockefeller Foundation have endeavored to supply an organic arsenic which would be more potent than those in use and took this means of evaluating its work. Dr. Bluemel and Dr. Greig are to be complimented for the sincerity and the thoroughness with which they have carried out the desires of this Institute.

We see from the negative findings here presented how difficult it is to get anything which is going to influence the virus of syphilis which is secluded in the tissues of the nervous system, especially in the central nervous system, into which no fluid can at times be made to permeate. Consequently in paresis and locomotor ataxia especially, it is difficult to conceive of any great or permanent impression being made after the parenchymatous changes have been produced by the virus, and I am reaching the stage now where if I find my paretics improved, I am beginning to look with a good deal of doubt on the correctness of my clinical interpretation. In other words, when a case of paresis under my care improves sufficiently enough to resume his occupation for any length of time, I think of it as most likely a paretic type of cerebrospinal syphilis.

TRYPARSAMIDE

The Rockefeller Institute for Medical Research has announced the release of the drug known as Tryparsamide for use in the treatment of human and animal trypanosomiasis (African sleeping sickness and *mal de caderas*) and selected cases of syphilis of the central nervous system. This action is based on results reported from clinical investigations which have been in progress for several years. The drug will be manufactured by the Powers-Weightman-Rosengarten Co., of Philadelphia, and will become available through the regular trade channels about January 1, 1925. In releasing the drug for the benefit of the public, the Rockefeller Institute desires it to be known that the Institute does not share in any way in profits that may be derived from the sale of the drug and that, with the cordial co-operation of the manufacturers, provision has been made for the maintenance of a schedule of prices on as low a basis as possible.

Eight Hundred Lives Credited to Safety Instruction

Saving the lives of 769 children of school age is credited to safety instruction in the Detroit schools for the five years 1919 to 1923, inclusive. Decrease in child fatalities has been from 1.64 per thousand in 1919 to 0.78 in 1923, a drop of more than 50 per cent; in relation to automobile registration the decrease has been from 0.85 per thousand in 1919 to 0.39 in 1923; upon the basis of total population the decrease has been from 0.22 per thousand to 0.18 per thousand.

A CASE OF LUPUS VULGARIS. CASE REPORT AND DEMONSTRATION.*

E. D. DOWNING AND F. A. FORNEY, M.D.
WOODMAN, COLORADO

The patient entered the sanatorium May 30, 1923. He gave a history of cough, expectoration, night sweats and history of tubercle bacilli in August, 1922.

He had had a tonsillectomy in January, 1922, under "general anesthesia."

Physical examination showed him to be far advanced pulmonary with complicating otitis media sinistra and dextra and a tuberculous laryngitis.

There was an obstruction of left naris with a purulent discharge.

While a patient, more than 160 sputum examinations were negative for tubercle bacilli and one positive (on June 15, 1923). The lesion obstructing the naris was practically stationary for several months. Sections from the granulation tissue in naris did not show tubercles.

Smears from nose and a lesion on shoulder,

which appeared in January, 1924, were negative for tubercle bacilli.

Clinical Course

His temperature was usually normal, but at times he ran a low grade fever. Pulse ranged from 70 to 100 in the early course of treatment, gradually getting lower until December, 1923; in January, 1924, it reached its former level and from March to the present time it ranged from 70 to 80. Weight on entering, 121½; at present, 134.

Treatment

In December he was given local treatments of quartz light with water cooled lamp to nose and side of face, beginning at one minute at about one inch distance. These were worked up to three to five and seven minutes and were given daily, except when reactions were too severe, when they were skipped one or two days. At times we got severe reactions, i. e., heavy lymphorrhea with scabs and foul pus. On an average,



Figure 1—Lupus vulgaris. Beginning nasal obstruction June, 1923.

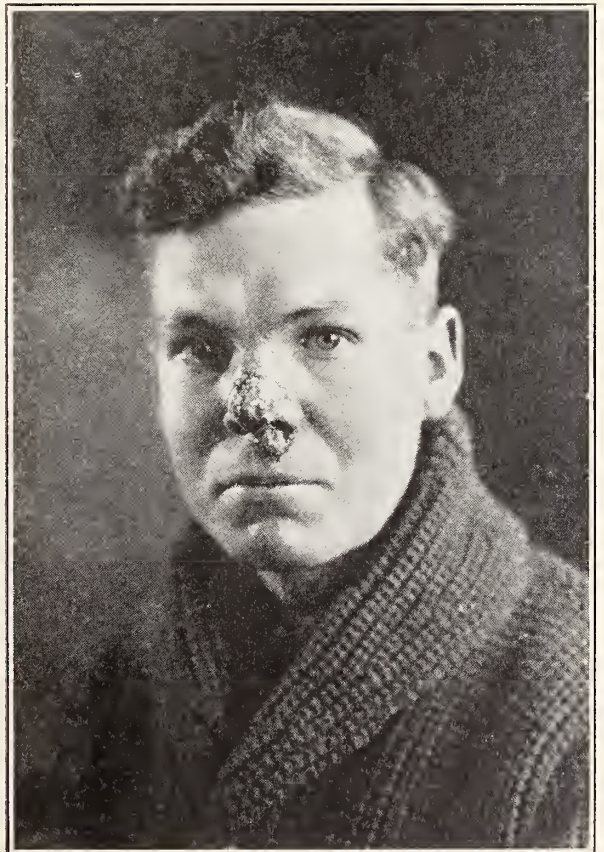


Figure 2—Lupus vulgaris. January, 1924, shortly after the beginning of light treatment.

*Read at the annual meeting of the Colorado State Medical Society, October 7, 8, 9, 1924.

scabs were removed twice weekly. The condition gradually improved and was much better in April, that is, the involved areas were about three-fifths of the size at the beginning and reactions were less severe.

The middle of February the case was progressing slowly. We changed to the air cooled lamp and gave six to ten minutes at twenty inch distance. At the ten minutes exposure we blistered his nose and had to discontinue treatment for one week, but we got a more rapid healing following this.

He was started on general radiation the last of January, i. e., air cooled lamp, and has continued on same ever since. In May he was started on heliotherapy at five minutes exposures and by July was getting one hour on the back and one and one-half hours on exterior surface of body and has been on that ever since.

July 2, 1924, he was given x-ray to tonsils. K V -98 MA2½. Time, 5 minutes 16" distance and 1 MM A1. Filter. This was repeated July 25th. August 1st, external meatus and mastoids were rayed. K V -94 MA 3, distance 12", 1½ minutes on each side.

August 5th nose was rayed. K V -94 M A 3. Time, 1 minute. Distance 18" - 1 MM A1. Filter.

August 22nd ex. meatus and mastoids were rayed, same as on August 1st.

He had had two treatments to nose in May.

The water cooled lamp was used to treat pharyngeal lesions from February to June. While we got some improvement the lesions seemed to respond better to x-ray.

Conclusions

We believe that the direct action of the radiant energy has been of more value than the indirect, because those parts where the rays came directly in contact with diseased tissue have responded nicely, while in the larynx there is still considerable trouble. But we do not mean that general radiation has been of no value.

Following x-ray he had perceptible improvement in hearing but, of course, hearing cannot return when one's ear drum is almost entirely gone and the opposite one probably so diseased that it cannot function.

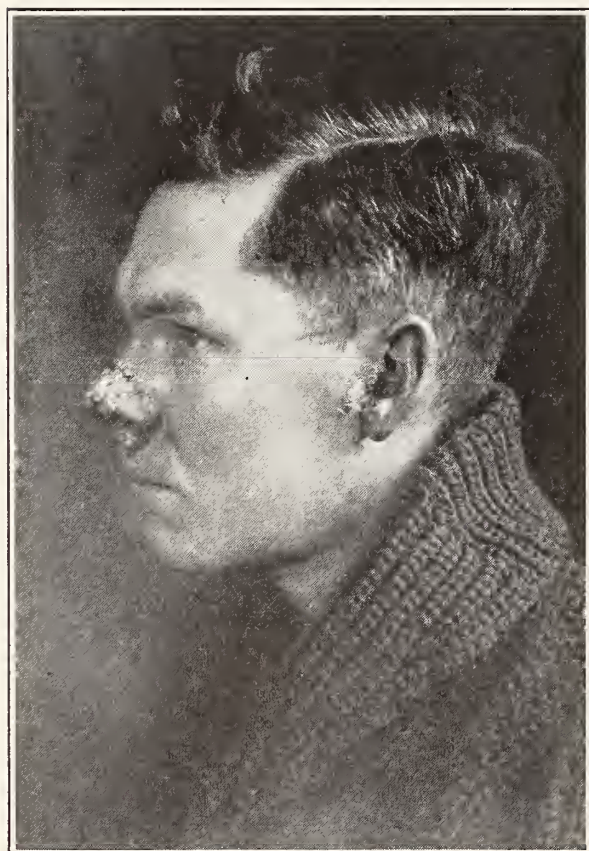


Figure 3—Profile of same patient.

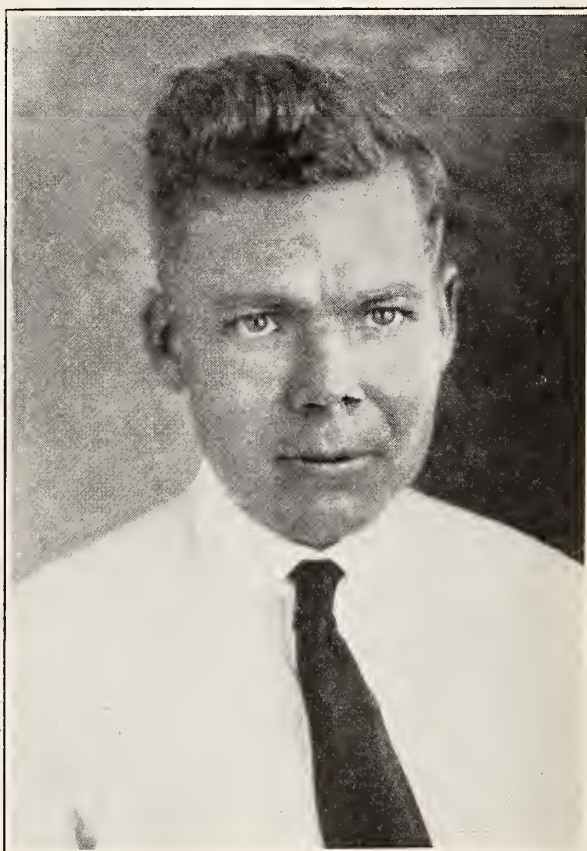


Figure 4—Result obtained September, 1924.

CAESAREAN SECTION IN ECLAMPSIA*

C. B. INGRAHAM, M.D.

DENVER, COLORADO

The treatment of eclampsia was entirely empirical until the discovery of albumin in the urine by Lever of London in 1843 when it was stamped as a disease of the kidneys. Later Bouffée de Saint Blaise observed liver lesions and spoke of an hepatic toxemia and renal lesions were relegated to a secondary place. At this time in Germany the mortality was almost 33 per cent.

In 1891 Dührssen conceived the idea that gestation being the cause of the toxemia, immediate termination of pregnancy was proper. He proposed Caesarean section and a few years later introduced his vaginal Caesarean delivery. This treatment gained great favor in both Germany and America and in certain German clinics the mortality fell to between 18 and 19 per cent.

Zweifel calls eclampsia "The Disease of Theories". Its etiology is still undetermined but because it is a toxemia dependent upon gestation, the idea still prevails that immediate termination is the rational procedure. There is still no unanimity in treatment but it is being recognized that certain methods of delivery greatly decrease the chances for the mother. Accouchement forcé is accompanied by such a high mortality that it is practically interdicted, and Caesarean section stands next in line.

Twenty years ago practically all obstetricians believed in the radical form of treatment, that is immediate delivery. Today most of the men of larger experience have come to the conclusion that forced delivery causes an occasional death. By the conservative method Williams states that in ante- and intra-partum eclampsia the mortality has decreased almost one-half, from 24.7 to 13 per cent, while the post-partum variety, in which the question of rapid delivery does not arise, has remained practically unchanged. He also adds that excepting accouchement forcé, Caesarian section

offers the most dangerous method of treatment.

The British Congress of Obstetricians and Gynecologists recently published a report comprising observations on 2,715 cases occurring in the British Empire during the preceding ten years.

Objection is often made to statistics, that they may be arranged to prove or disprove anything. Collective medicine exceeds in value the ideas of the individual. Few men have sufficient experience in eclampsia to lay down a definite line of treatment, and an impartial study of a large series of cases is the most reliable method of determining facts.

As results depend upon the severity of the case, the British have made a close study of their figures and conclude that the following seven phenomena are signs of danger: Coma, pulse rate over 120, temperature above 103, the number of fits greater than ten, the presence of solid albumin on boiling the urine, the absence of edema and a blood pressure of over 200. The presence of any two such findings, marks the case as severe.

Considering their cases from the standpoint of the method of delivery, they find:

706 Cases Available for Study

With natural delivery a mortality of 4.5 in mild and 36.9 in severe.

With assisted delivery a mortality of 5.6 in mild and 31.7 in severe.

With induction delivery a mortality of 6.6 in mild and 26.4 in severe.

With Caesarian section a mortality of 11.3 in mild and 46.3 in severe.

With accouchement forcé a mortality of 18.1 in mild and 63.1 in severe.

A glance at these statistics precludes the advisability of resorting to accouchement forcé, while in Caesarean section, we see that in mild cases this operation practically doubles the mortality and is about one-third larger in severe cases than with natural, assisted, and induced labors combined.

*Read at the Annual Meeting of the Colorado State Medical Society, October 7, 8, 9, 1924.

In 1914, Peterson collected in Europe and America 500 cases of abdominal Caesarean section done for eclampsia. He divides the cases into two groups, those done prior to 1908, and those from 1908-1913, for he considers that obstetrical surgery had not reached the advanced technique of the later series and that sepsis was a potent factor in mortality. The first series with 198 cases had a death rate of 47.97 per cent, while the second series showed a 25.79 per cent mortality in 283 cases.

This later figure is somewhat better than the British report with 28.8 per cent deaths in mild and severe cases combined, but is considerably larger than with the three conservative methods, with a mortality of but 18.6 per cent.

Peterson remarks that Caesarean section is often resorted to because the patient is moribund or septic, which would reduce the mortality in selected cases. Also whether or not the patient has been subjected to frequent examinations or attempts at delivery, is important, but we are seldom able to choose our cases.

His analysis of the number of convulsions affecting the mortality in Caesarean section shows that when operated on with less than five seizures, there were 20.32 per cent deaths (124 cases, 25 deaths), while the increase with delay, to six or more, produced a mortality of 30.33 per cent.

While a patient may die from eclampsia without having had any convulsions, or live following many, these seizures are more or less an index to the degree of toxemia. The early emptying of the uterus may put a stop to the further elaboration of toxins. Later, resultant lesions continue in effect. In very rare instances, Caesarean section may have a place in pre-eclamptic toxemia. Later, we are subjecting a profoundly ill patient to the serious effects of a major operation. It is of unquestionable advantage to effect delivery, but not if we are to jeopardize the mother.

I had hoped to procure data from a large number of cases, by going over the records of the hospitals in Denver, but the result is disappointing. Mr. C. T. Amorosi and Mr. C. Allen of the Medical School have done

this work for me, and here I wish to express my sincere thanks to them. There is a valuable amount of material in the records of these hospitals, but until standardization took effect two years ago, the cases have not been indexed and unless we look through each chart, the diagnosis is not found. Consequently, these men found but 27 cases. I have procured 19 more from physicians in the city.

Local Cases—45

	Lived	Died	Mortality
Natural delivery	10	1	.9
Assisted delivery.....	6	2	25
Induced delivery	1	1	50
Abdominal section,			
Caesarean	8	11	57.9
Accouchement forcé	1	1	50
Vaginal Caesarean	3

The records were not sufficiently complete in the majority of instances to allow classification into mild and severe cases.

This number of local cases is too small to be of practical value, but it is nevertheless in accord with the figures of the large series previously quoted. It shows, too, that during the last few years in Denver, about 42 per cent of the cases of eclampsia have been delivered by Caesarean section, with a mortality of 57.9 per cent.

The termination of convulsions in no sense means the termination of the disease. Peterson's figures show that fits cease after operation or spontaneous delivery in practically the same percentage, namely, about 59.5 per cent. The British report states that in three times out of four, fits stop following delivery, yet the mortality is 22.3 per cent for cases in which they continue and 22.9 per cent where they cease, practically the same.

The foetal mortality, variously estimated from 30 to 60 per cent, must always be high in eclampsia. A large number of children are premature, they show effects of maternal toxins and of treatment, are frequently deprived of breast feedings and the method of delivery is a great factor. By Caesarean section it is shown that the chances for the baby are somewhat better than if another method of delivery is employed, with the exception of natural labor.

One may ask, what is the accepted method

of treatment of eclampsia? As has been said, there is no definite procedure. The best figures come from Stroganoff, who in 230 personal cases, had a mortality of 1.7 per cent, while others using his method report 9.8 plus per cent in 2,208 patients.

The statistics from the Rotunda Hospital in Dublin, under the outline of treatment devised by Tweedie, show 10.29 per cent deaths. Those who are interested in this subject are familiar with the Stroganoff and Dublin methods. They are based on diametrically opposite principles, with the exception that they agree that obstetrical interference is not to be resorted to until the cervix is fully dilated, when if necessary, labor may be assisted.

Stroganoff removes the patient from all external stimuli, placing her in a darkened room, gives $\frac{1}{4}$ grain of morphia and one-half hour later 30 grains of chloral hydrate in 250 c.c. of saline solution, either by rectum or mouth. Milk may be substituted. The morphia is repeated in three hours, the chloral in seven hours, and 20 grains, thirteen and twenty-one hours later and every eight hours, as long as necessary. The convulsions are controlled by chloroform. If there are more than three convulsions, 400 c.c. of blood are withdrawn. Oxygen and cardiac stimulants are used when indicated, 25 ounces of milk are given by bowel or mouth, and if necessary, delivery is assisted after full dilatation of the cervix.

The Tweedie treatment calls for starvation, copious stomach and bowel lavage, tremendous quantities of soda bicarbonate, epsom salts following the stomach lavage, care of the patient during fits that mucus may not be aspirated. There is the minimum amount of obstetrical interference, assisting labor only when necessary.

As an example of the American form of treatment, let us consider that followed at the Johns Hopkins Hospital. There, in 115 cases occurring during the 10 years ending in 1922, the gross mortality was 14.7 per cent.

The curative method consists of placing the patient in a quiet, darkened room. A $\frac{1}{4}$ grain of morphia is given, a second dose

if necessary, but not more than $\frac{1}{2}$ grain in 24 hours. If comatose, the patient is turned on her side and the foot of the bed elevated to prevent aspiration of mucus or other fluid. If a second convulsion occurs, a venesection of 1,000 c.c. is done, or until the blood pressure falls to 100. In many instances, no further convulsions occur, labor sets in, or if labor has not supervened, the disease becomes arrested and days or weeks later, labor comes on spontaneously, the so-called intercurrent eclampsia of Lichtenstein.

If conscious, water is forced by mouth, if not, 500 c.c. or 5 per cent glucose is given intravenously, and repeated in twelve hours. Epsom salts or croton oil is administered. If the case is progressing satisfactorily there should be no thought of emptying the uterus until the cervix is fully dilated, when, under gas or ether (because chloroform is thought to produce further liver destruction), forceps or version are used to complete delivery. If the convulsions and coma continue and the cervix becomes dilated to 5 cm., dilatation is completed by Harris' method and the child delivered by podalic version. This is the nearest approach to accouchement forcé, as disastrous experience has shown that forcible dilatation is not of advantage to the patient.

Previously the treatment differed. Delivery was effected as soon as possible, hot packs were used, diuresis stimulated, salt solution was given under the breast, and a few hundred c.c. of blood withdrawn. The hot packs were abandoned because the sweat was shown to consist practically of water with an insignificant fraction of excrementitious material, and furthermore, because the impression was gradually gained that oedema served some protective purpose. The subcutaneous salt, because there is a retention of sodium chloride in the body and glucose, acts as effectually, both as a diuretic, and at the same time introduces easily assimilable foodstuff. Venesection, to be efficacious, must be in considerable amount and occasionally results in complete disappearance of symptoms.

Veratrum viride does not appeal to Williams; it is highly praised by many writers.

Personally, I have found it apparently most useful.

Fully 85 per cent of eclamptics show premonitory symptoms, so here lies our real opportunity of combating the disease. Treatment at this time is of more value than the actual cure. The mortality (British statistics) of those with the premonitory symptoms is not as great (16.8 per cent) as those without (22.5 per cent).

Those who state that eclampsia is always avoidable, and that its occurrence indicates neglect, take too extreme a view, for in spite of all we can do the disease may still occur.

There is a strong temptation upon the part of the obstetrical surgeon to effect immediate delivery in order to complete a certain large part of the responsibility and to depend on medical methods to do the rest. By so doing we must recognize that we are not increasing our patient's chances and that the indications for Caesarean section in eclampsia are those which are present only when the disease does not exist.

DISCUSSION

Foster H. Cary, Denver: I am sure I voice the sentiment of the Society in saying that Dr. Ingraham is indeed to be congratulated upon this most thorough, conscientious, and concise paper in regard to these cases. It is a very complete report on this very trying condition in regard to Caesarean section in eclampsia. As pointed out by the writer, and brought out by most of the articles which have appeared on this subject in the last few years, three factors have governed in a general way the treatment and care of these eclampsia cases. In the first place, the cause is unknown. In the second place, we know that it is a condition that occurs only in pregnancy, and in labor, and in the third, we know that a large percentage of the cases tend to recovery after delivery is effected. That has led to the treatment along the line often suggested, of early and rapid termination of the pregnancy. Men more or less surgically inclined naturally lean toward the rapid, short, quick method, and believe that there is indicated a quicker Caesarean section than the delivery by natural methods, or any method that would temporize and delay the delivery. Caesarean section, if it is quickly performed, many believe, is attended by little or no shock, and that the bleeding which takes place is favorable in producing a certain lowering of the blood pressure; but experience in the past few years has shown this to be error, as these statistics of Dr. Ingraham have brought to light. Yesterday, the Boston Medical and Surgical Journal, came to my attention through the mail, and in it is an article by Studdiford of the New York Sloan Maternity, on the "Relation of Obstetrics to Preventative Medicine." He takes up all branches of "ob-

stetrical problems, and one short paragraph right in line with this, I will read.

"One thing is becoming more and more evident in our experience with this class of cases, namely, the immediate termination of pregnancy in the presence of toxemia (without first attempting to relieve the symptoms by hospital care and appropriate treatment) often defeats the object desired and proves fatal to both mother and child. In this view we are in accord with Tweedy, Newell, Williams, and others, that a conservative plan of treatment is indicated in all cases of toxemia with or without convulsions."

That apparently is a conclusion which has been reached at the largest Clinic in the City of New York. Williams, in his latest text book, is in accord with this particular line of treatment. I think the condition in the past in regard to eclampsia has been a feeling that the case can be immediately terminated, and if allowed to carry on with conservative treatment for a time, one is constantly facing the situation of the advent of convulsions, or that perhaps the next convulsion is the one that would carry the patient away. To be slightly personal, I would like to say a word or two in regard to the experience which I had when a colleague of mine and myself inherited two services at Worcester, Massachusetts. The man who preceded us there, Dr. Leonard Wheeler, who felt he wanted to retire from this sort of work, had always been a conservative man. He was very much interested in these toxemias of pregnancy, and had heard a lot about the use of veratrum viridi and other measures to tide along the case. He suggested that possibly it might be well to have a preparation made which would be safe to give hypodermically, and at his suggestion Parke-Davis made this preparation under the trade name of Veratrone. These cases were treated exactly as outlined in Dr. Ingraham's paper, except that veratrone was used in place of chloral. A patient coming in with a high blood pressure of 160 to 200, was usually given 20 m, and this repeated in 5 to 10 minim doses p. r. n. to keep the pulse at 70. These patients usually did not have recurrent convulsions. If they did, they were at longer intervals, and a majority of them delivered spontaneously. When the patients came in, they were put under a routine treatment of veratrone, morphia if necessary, and eliminative measures. The stumbling block is, one does not seem to realize that the veratrone is given either under the supervision of an interne or a carefully trained nurse, and that it is necessary to keep the pulse at the rate of 70.

Robert T. Frank, Denver: Dr. Ingraham put the problem before you in a perfectly clear-cut fashion. He showed both local and general statistics, and made it evident that Caesarean section is not a success in eclampsia. Eclampsia as a community problem will almost always remain in the hands of the general practitioner in small communities. It is of great value to prove to him that Caesarean section, an easy operation as far as the technique is concerned, is a failure in eclampsia. Dr. Ingraham made this point unmistakably clear. The problem is quite a difficult one. Cases of eclampsia differ in degree. Their treatment varies entirely. Prophylaxis, of course, is the main issue. Where prophylaxis is not attended to, the patient is sometimes to blame, and in other cases the physician. If you are confronted with eclampsia, do not think that immediate delivery is the thing to be aimed at. The thing to be aimed at is to try to tide your patient over the period of her toxemia. During that process.

almost invariably the cervix begins to dilate. It was my fortune or misfortune to see Cragin's work more than twenty years ago with accouchement forcé at the Sloan Maternity. The cases were delivered, the obstetrician went home, and the patients died. We on the house staff saw the end. I have seen veratrum used most unsuccessfully. Sometimes in a multipara, who has unconsciously gone into labor, it is enough to rupture the membranes. In other cases, glucose by rectum, or subcutaneously, exclusion of light and outside irritations, particularly of a nervous family, the clearing out of the bowels; is of great value. Do not give salt solution, as I think Dr. Ingraham has already said. Packs knock out the patient too much. If intervention is to be proposed, I know of nothing that is less likely to do harm to the patient during the time that you are preparing her for delivery, than the introduction of the rubber bag in the cervix. That can be done without anesthesia if the patient is being given Stroganoff's treatment. I never remember the details of this treatment, and when I was actively engaged in the practice of obstetrics, I had the exact dosage and the way to give it written in my note book. The technic, of course, has to be varied according to how the patient responds. During the time the treatment is being given, the cervix will gradually dilate. A slow delivery usually means a safe patient. I have seen such profound toxemias of course, as all of you have, who cannot be saved by any of the measures that we have attempted. Those are particularly the patients in whom we would be inclined toward Caesarean section. But the overwhelming mass of statistics have shown definitely that this attempt is ordinarily a failure.

T. A. Stoddard, Pueblo: The practice of obstetrics is perhaps the most neglected of all the work the physician has to do, whether it be in the country districts, or whether it be in the cities. Patients are supposed to be pregnant in the normal way, and it is supposed to be a normal physiological condition, but unfortunately pathological conditions supervene, and very little notice is taken of them. The patient is instructed sometimes to send a sample of urine to the doctor's office once in so often, as often as he pleases, sometimes not that often, and no record is taken of the blood pressure of the patient whatever. The physician is to blame, for this rests on the shoulders of the doctor himself, and too frequently patients are allowed to go until they are in extremis; there is no knowledge that any pathological process is going on, and this is not as it should be. And one of the great reasons is, in our medical meetings, both state, county or national, there are too few papers read on this subject. The attention of the general mass of practitioners is too rarely called to this very, very important matter. Immediate delivery in eclampsia I do not believe is correct. I do not believe any of us have the right to destroy, willy nilly, the life of a possible future president, or a successor to our own Mother Jones, simply because it happens to suit our convenience. I do not believe it is right at all. I believe the patient can be tided over, if proper attention is paid to her habits, and if necessary, hospitalization, proper care, and as both the essayist and one of the men who spoke on the subject say, segregation in a quiet room, away from a nervous family, and not under the care of a nervous nurse, and certainly not under the care of a nervous doctor. I sometimes think that the nervous doctor has a good deal to do with the bad condition that

comes up so frequently in those cases. Let the doctor not be nervous over the matter, and tide the patient along until such time as nature will assert itself and delivery is made in a natural way, and the patient's life is conserved. There are times, perhaps, when Caesarean section is the proper thing to do. To give you just one instance: Take a patient 45 years of age, her first pregnancy, rather narrow pelvis, a mal position fetus, and what are you going to do? Allow that woman to attempt a natural delivery? No. A Caesarean section, and not a vaginal, is the proper procedure. I believe; so that there are times when Caesarean section is the proper course to pursue.

W. S. Craghead, Denver: I recently saw a case three weeks before she was confined. The blood pressure was 180. The albumin four per cent plus. Before I succeeded in getting her to St. Anthony's Hospital, she had five convulsions. I took the case up with Dr. Ferris, an intern at the Hospital, with the idea of deciding what to do in the case, and Dr. Ferris said, "There is probably nothing to do except the Caesarean section." I called up Dr. O. S. Fowler, and Dr. Fowler answered the call very promptly, and we instructed that they use normal saline subcutaneously. Dr. Fowler suggested we use five quarts. The nurse seemed not to understand. At least, the instruction were not followed. Dr. Fowler and I stayed there until daylight. We got there about midnight. When we returned the next morning about eight o'clock the patient had only had a pint. The convulsions had become further apart at that time, however, so Dr. Fowler suggested that we stay until we gave that patient five quarts of normal saline subcutaneously. The kidney function was established. I confined that woman about two o'clock in the afternoon with forceps. The convulsions subsided. She lived three weeks. I considered her absolutely out of danger. They called me up early one morning about seven o'clock, and when I got there I confessed to the mother that I did not know what had happened. I said, "It is very plainly evident that the patient will only live a short time; but I don't know what has happened." The patient died about two o'clock the following morning, after becoming paralyzed on the right side. Thrombosis, I would presume, ended the patient's life.

W. F. Singer, Pueblo: Dr. Ingraham touched just a little bit indefinitely on things that were of great importance, to my mind. He said you should use plenty of water. When you say to the nurse, "Give this patient plenty of water," you mean nothing; and you are all doing it in all your surgical cases. And it is ridiculous. The thing to do is to maintain the urine at a low specific gravity. Then you have done something definite. I carried a case recently—I am just as modest as the gentleman over there—I hate to mention anything personal; but I carried a case thirty days, stood it off with a blood pressure of 196, reduced her in a few days to 160, maintained her for thirty days and delivered her without a convulsion, maintaining the specific gravity of the urine below 1010 all the time. But you have something to wash out of this blood, and water does it better than anything else. But it is useless to use water unless you use it definitely. The doctor mentioned something about edema, about possibly protecting the patient. I think that is true, and I think that the reason we have post-partum eclampsia is because toxic bodies are in these edemas, and they get out and cause eclampsia within. If your eclampsia cases have been doing

well with water until you have delivered your patient, keep it up for two weeks.

C. S. Elder, Denver: I hope that the President will relax his severity a moment and allow me to digress. I wish to speak not only on this subject, but to the honor of the profession of the obstetrician and gynecologist. Dr. Ingraham is a successful surgeon. So is Dr. Frank. But when they come to consider a condition which affects mother and child, their palms itch for surgery. They are willing to abide by the facts which are shown by the statistics which they have been able to gather. Now, I conceive that we must all abide by the facts, and I am quite sure that if a large number of patients are taken together in all kinds of hands, the treatment which Dr. Ingraham has recommended to you will prove to be the best one. But I dislike that kind of an argument. It always irritates me for a surgeon to rise in a medical convention and say, "Now, for a skillful man like me, this method is the best, but for you people in general, something else is the best." What we must know is, what treatment is best in the most skillful hands.

I cannot affirm that Caesarean section is the proper treatment in eclampsia. The evidence seems to be against any such affirmation. But I would like for Dr. Ingraham to tell us, if he can, what it is in Caesarean section which leads to high mortality. Cases of eclampsia vary in severity. When medicine or surgery are used in treatment of a disease it is pretty sure to happen that surgery is reserved for the late and severe conditions. If that happens to be true of the cases collated in Dr. Ingraham's statistics then Caesarean section may yet have a place in the treatment of eclampsia. I think Dr. Ingraham considered that, but I did not hear him well.

We have had these measures proposed for the treatment of eclampsia: Rapid delivery. And nature proclaims this as her own method. In rapidity of delivery and that too without effort on the part of the patient, Caesarean section is not equalled by any other method. Sedative drugs, such as chloral, morphine and chloroform have their advocates and these are the drugs used in surgical anesthesia. Bleeding is a rational treatment and during operation bleeding from the uterine veins may be encouraged. Indeed, medicines like veratrum, which reduce blood pressure have many advocates. They induce a state very similar to shock. The shock of an abdominal operation cannot well be accused of having lethal quality therefore. It is not sufficient that we have a statistical representation of the order in which events proceed, such as eclampsia, Caesarean section, death. The human requirement is that we should know **why** they proceed in such order. Night follows day but day doesn't cause night. I confess that statistics such as Dr. Ingraham's make me conservative. But if, without them, I were left to judge from what I know of eclampsia and of surgery whether they belong together, I would conjecture that they do.

O. S. Fowler, Denver: I want to speak a word on this paper in regard to the treatment of eclampsia. I want to say a word as to how to keep away from the treatment of eclampsia. I believe that 95 per cent of all cases of eclampsia can be prevented. Dr. Singer has certainly touched upon the right note in the matter of quantities of water or fluids sufficient to keep the specific gravity down below 1010, as he says. I would place it below 1005. If you would keep the specific gravity down during the period of pregnancy, that patient must be followed closely all through the period

of pregnancy, to see that the specific gravity does not get unduly above 1005. If you will do that, we do not need to have a long discussion as to whether Caesarean section is right, or whether this is right, or that is right, in cases of eclampsia. These cases are due to the fact that we are not watching the patients closely enough during the period of pregnancy. We have had our ideas established many years ago of what was normal urine and I have said before and given you my ideas that I regard these as wrong. When you think you have a good kidney, because it is putting out urine of a specific gravity of 1030, your patient is probably in danger at the same time. If you will keep close watch of this patient's urine during the period, you will avoid 95 per cent of all your cases of eclampsia. I feel Caesarean section should be used only in cases of inability of the fetus to pass through the birth canal. A few years ago I was called in consultation as to whether a woman's uterus should be emptied in the fourth month of pregnancy. I said, "By the time you can get this woman in condition so that she can safely go through an emptying of the uterus, she will not need to have her uterus emptied." I said, "You give this woman two gallons of water in the next twenty-four hours." This was done. In another twenty-four hours we had another consultation and the woman looked about as normal as any woman you ever saw, and went on to labor without any complications. We are neglecting our pregnancy cases, because we feel, as it has been said, that it is a natural phenomenon, and that they should go through it. The matter of giving one thousand c. c., as Dr. Ingraham mentioned, in eclampsia, to my mind is not nearly sufficient. If you are in eclampsia, which unfortunately you may be, you must give large quantities of fluids by all methods, under the skin, into the vein, by the bowel, by the mouth, and the most of your patients can be carried through without any delivery by force of any type. I believe these things are reasonable. I would like to have some of you men who are really handling a large number of obstetric cases, to carry through 100 cases keeping the specific gravity of the urine down below 1005 all the way through, and see what percentage of eclampsia occurs in those 100 or 500, if you could have that many. I think you would be convinced that the treatment of eclampsia is the treatment of the patient before it occurs.

Dr. Ingraham, (closing): Regarding the question of therapy, we have as an explanation for venous section, that this procedure not only lowers the blood pressure, but at the same time with a large withdrawal of blood there is an elimination of a large amount of toxin. Veratrum veride lowers the blood pressure without any direct removal of toxin.

I did not say we should give one thousand c. c. of fluid, as has been said, but without one thousand c. c. of blood, or until the blood pressure falls to one hundred millimeters, for that is a better means of gauging than by the pulse. Often a poor pulse, you will find after a venous section, has improved, is slow and full. In regard to Dr. Elder's remarks, I do not think I can answer his question as to why eclamptics die after Caesarean section, other than to say that the statistics are general; they are taken from a large number of men. They represent results from good and average men, suggesting that they may depend upon the skill of the surgeon. I will say that one, you and I consider as a good surgeon, had 13 cases of eclampsia. He treated 10 of them by

Caesarean section and 6 of them died. Sixty per cent mortality. Now, as to why they died? The well patient, after operation, dies of shock or the kidneys do not eliminate as they should, from infection, pneumonia, or from various causes; here we are taking an ill patient, subjecting her to a serious operation, and the reason she does not get well is that she does not stand the extra strain that is put upon her resulting from a major operation.

I think we are very much up against it when we have a primipara, who does not go into labor, or has a rigid cervix which does not dilate. However, practically all cases will deliver themselves

if you treat them conservatively, use venous section and give them plenty of water, as has been mentioned. We have to see that we have sufficient elimination as compared with the amount of fluid intake, because if we crowd the water, we will have oedema of the lungs unless the proper amount is eliminated.

Education of the obstetrical patient is the main question here. Just as Dr. Joslin has said, it is necessary to educate the diabetic, so we have to educate our obstetrical patient to bring urine in at intervals for examination; the patient should keep the bowels open; she must not over eat; if she cuts down her food during pregnancy, drinks plenty of water, she will seldom have eclampsia.

DANGERS OF COMMERCIAL LYE

C. HOWARD DARROW, M. D.

DENVER, COLO.

Bearing in mind that during the past year I have had occasion to administer to three cases of recent lye poisoning, I deem it incumbent that I briefly report the cases along with a discussion of the subject as a whole.

We know that concentrated lye contains ninety-four per cent of sodium hydroxide, a most destructive corrosive. Numerous cleaners contain from ten to fifty per cent of caustic alkali. These powerful agents can be purchased at any grocery store. Besides, the label frequently gives no warning of its poisonous contents. I have taken the trouble to learn the various brands of lye sold here in Colorado. The most common, "Red Seal Lye," seems to be quite popular throughout the country. This brand has a large red seal along with instructions for use placed conspicuously so it "hits the eye," but the poison notice is in small type and written vertically. Who would observe such a caution even though he were neither presbyopic nor possessed any other defect of visual acuity? You would have to have your glasses on, and, as Dr. Chevalier Jackson has said, in scrubbing reading glasses are not worn. Other common brands sold in this vicinity are "King Pin," "Bulldog," and "Babbitts." All these have the poison caution in an inconspicuous place. Of course this for a purpose, but all at the expense of innocent little children.

Who thinks of leaving around in the reach of children "Rough on Rats" or

"paris green"? No one, of course, because they have large scare labels notifying everyone that they are dangerous. Lye is usually kept in the kitchen for various cleaning purposes, including the floor, where particles of lye may be left. As it closely resembles sugar, children very commonly pick it up for such. It is frequently left in cups and measuring tins about the house, where it has been dissolved and measured for soap or hominy making.

The druggist cannot dispense a poison without placing a prominent label on it, but the lye preparations can be purchased at the grocery. Besides, they are not found in the family medicine chest, but the kitchen, where they openly invite calamity.

The remedy lies in apprising the public of the ill results of these various compounds, so that in due time legislatures will see the necessity of enacting laws requiring the proper labeling. It has been suggested that each label bear the caution:—Lye Is Poison! Keep It Out of the Reach of Children! This is more of a state than federal problem, since federal legislation alone could not control intra-state sales of a locally packed preparation. Very good laws on this subject have been passed in Pennsylvania and Florida. Other states have the question under consideration. As a secondary means for prophylaxis physicians, nurses, welfare workers, etc., should teach people the poisonous nature of lye and all similar cleaning preparations, including laundry powders.

Case 1. C. A. (aged 2 years.) Child was

brought to my office one-half hour after it had swallowed some of the contents of a can of "King Pin" lye. The child secured the can from a chair in the kitchen while the mother was doing the family washing. When first seen the mouth, tongue and pharynx were reddened, already swollen and bleeding in places. The usual antidotes for alkalis were used. A tube was passed through the nose and into the stomach but there was no evidence that any of the lye had reached the esophagus or stomach. The patient made an uneventful recovery.

Case 2. (Japanese, 17 months old.) Baby swallowed an indefinite amount of lye water by drinking from a cup found on the kitchen table. The mother had been using the lye in the preparation of hominy. The accident occurred about one o'clock on March 21, 1924. The child was admitted to the Children's Hospital at 4:30 p. m. the same day. Examination showed the child was extremely dyspneic and somewhat cyanosed. Mouth and pharynx revealed severe burns. Pulse 180, temperature 104. Rational. It soon became semiconscious, dyspnea and cyanosis increasing until about 8:30 p. m. when a tracheotomy was performed. There was some temporary improvement following, especially as to respiration. But about 3 a. m. of next day it became progressively worse. The temperature rose to 109 F. (mouth) about two hours before death at 8 a. m. of same day. An attempt was made without anesthesia to pass an esophageal tube but this failed, due to the fact that there was an excessive amount of swelling of the pharyngeal and esophageal mucous membrane. Owing to the poor condition of the patient a general anesthetic was deemed inadvisable.

Case 3. A. M. (aged 5 years.) Noticed a glass containing a milk-like substance, some of which he drank. I was called to see him shortly at the home. Had usual symptoms following ingestion of lye solution, including inability to swallow. Before the swelling had progressed to any marked degree, I passed two rubber catheters (joined together) through the nose and into the stomach. The stomach was washed with

dilute vinegar, followed with oil. Some of the oil was allowed to remain in the stomach and the catheters were left in place to prevent stricture of the esophagus. In spite of the fact that blood and sloughing material were washed from the stomach, showing that some of the lye had passed the esophagus, no stricture followed.

Realizing that the above mentioned treatment, namely, immediate tubage of the esophagus is not in common use even among laryngologists, I feel that a brief description of the technic and advantages of the procedure are in order. Dr. Fritz A. Haberman, of Minnesota, was among the first in this country to use this method. He advises the use of a Nelaton esophageal sound, the diameter being 8 to 11 mm. Commonly, such a tube is not available, so I have used several times the rubber catheters mentioned above and found them very satisfactory. If too much time has not elapsed so that excessive swelling has taken place, the tube can be easily passed into the stomach by the nasal route. Sometimes esophageal spasm exists, then an anesthetic is necessary. The stomach is irrigated with such antidotes as are indicated and the tube left in situ for three weeks. The old fear of perforation of the esophagus does not come to pass. The advantages of the procedure are (1). Immediate removal of any caustic or other material that might be in the stomach. (2). Ability to nourish the patient from the beginning. (3). Neither special instrument nor specialist required. (4). The stricture not uncommonly produces a spilling of the saliva into the larynx where it is aspirated, causing respiratory infections. (5). No subsequent cicatricial stenosis develops requiring course of dilatation over a period of months or even years.

Comment: You can readily comprehend, if all the cases in the state were reported, the immense number of these sad cases we have around us. Many of these cases when seen late can only be improved. These children are crippled for life. We, therefore, owe it to the community at large, that proper means be taken to protect them. Let us have the necessary legislation in Colorado.

DIFFERENTIAL DIAGNOSIS AND SYSTEMIC FUNCTIONAL DISTURBANCE OF NEPHROPTOSIS*

O. S. FOWLER, M.D.

DENVER, COLORADO

I hope it will not seem presumptuous upon my part to again present to your body and make comment upon some of my views of the above general subject of nephroptosis, the surgical side of which you so kindly listened to a year ago. There are many extremely interesting phases of this condition as evidenced in the patient's general body health; some of them I will take up today. However, there are certain features of the subject I do not yet understand, but I want to make record of what I have observed and hope that an explanation may be found for them at some future time.

The subject of nephroptosis received much attention in the decade of 1895 to 1905 both in this country and abroad, and many were the operative procedures devised to correct this particular difficulty, but the procedures as used were either inadequate or caused so much trauma to the kidney that the operations were pronounced useless, and so little good came from them that the pendulum swung far the other way, and so great a prejudice against surgery for this ailment came about that many men have advised against surgical endeavor in this regard, even to the extent of the dictum that "If you find patients with nephroptosis, do not tell them, for if you do you will make neurasthenics of them." They failed to observe that already many of them were neurasthenics for good cause. If, as often happened, the patients had already for themselves found that they had a wandering tumor in the abdomen, then you must talk to them about the scenery of foreign lands and perhaps at most advise them to take a trip with the hope that they would "get their minds off of the harmless thing." The operation as proposed by Edebohls and known as the Edebohls' nephropexy came to be the one most generally used in this country, and unfortunately is still used, along with the many others that grew into disrepute, and rightfully so. Some years ago

Mr. Fellows of London gave some statistics upon the effectiveness of several methods of nephropexy. He said that the best of them gave only forty-five per cent of relief or even marked benefit. He also said that the Edebohls' gave only thirty-seven per cent of cures or marked benefit, hence the opposition and prejudice that grew up in the minds of the general practitioners the country over. We certainly cannot blame them for advising against any operative procedure that offers not more than forty-five per cent of cures or benefit. However, we must not overlook the valuable things that were found out in that period. It was as early as 1897 that both Edebohls of this country and Dieulafoy of France made the statement that "No ptosed kidney did normal work", and it is to the truth of this statement that I wish to bear evidence today. Not all of these kidneys may be giving serious symptoms and not all of them scream out and demand correction, but I have yet to find an individual with one or both kidneys badly ptosed and at the same time the proud possessor of real good health. Just how this ptosis causes the malfunctioning I do not pretend to know fully. I believe that the earlier explanation of twisting and dragging upon the blood vessels is only partly right. I am sure that kinking of the ureter sufficient to give more or less obstruction to the outflow of the urine is definitely a factor, and I further believe that there are other factors yet to be explained. Undoubtedly the connection of the sympathetic nervous system has much to do with the problem, and the shock occasioned to this system by a pulling upon the renal vessels or by a distension of the renal pelvis may reasonably have an inhibitory influence upon the general metabolism of the body. I feel at times as though there must be something developed in the kidney of the nature of a hormone, or something similar to such substance as known in other glands, that has an active reciprocating influence upon general body

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metabolism. On the other hand, these things may simply cause an inhibition of kidney function, and this in turn cause a retention of certain potent toxins by the failure of the kidneys to properly function and eliminate them, these in turn causing the malfunction or underfunctioning of the other physiological metabolic phases of the body. Thus these patients are working under a condition of retention of body toxins which should be eliminated by the kidneys, that may properly be regarded as a mild chronic uremia and are more or less under par, functionally, physically, and mentally. These things are so evident that such individuals may be picked out upon the street at a glance and their condition be further corroborated by talking a moment to them or by the most cursory history and examination. These patients have often gone the rounds of many doctors for a diagnosis of their difficulties, many having had the unfortunate experience of one to several abdominal operations without relief and have come to despair of ever obtaining relief. Too often they are placed in the class of neurasthenics; too, they may have grown suspicious of the motives of doctors and doubtful of their ability. They often become resentful toward the profession and feel that they have been used unfairly by the profession. They often take refuge in some one of the various cults and become avowed enemies to our methods of healing, and I want to say that I regard the uncured patient as fortunate if he or she can find any physical or mental relief by becoming an adherent of any one of these cults. I want further to say that I believe there are entirely too many uncured patients after surgical procedures. Whether this is due to hasty operating, to incomplete diagnosis, to too many exploratory operations in which it is impossible to find the real cause, or to lack of utilizing every possible procedure toward establishing a definite diagnosis, I cannot say, but I feel sincerely that the number can and should be markedly reduced. I feel that if we approach every patient without prejudice, we shall be very much more likely to land rightly than if we have any preference toward any particu-

lar area. I believe that surgery is a sufficiently accurate science so that it is possible by care and diligence in exhausting the several diagnostic procedures applicable to each case to either include or exclude all possibilities so that we shall seldom need to hesitate to say what it is or what it is not. Now I do not mean to imply that all missed abdominal diagnoses are some form of kidney lesion; but that this situation is entirely too common none can deny, and we, as general surgeons, should approach every case unbiased and prepared to give such surgical relief as is necessary in each instance.

I will now endeavor to describe these various malfunctions and general effects upon the body that I have observed and which I have seen constantly and permanently benefited by the correction of the nephroptosis and the production of a free outflow of the urine.

First: The general appearance usually shows them poorly nourished, the skin usually sallow, mucous membranes anemic, eyes dull and expressionless, face usually drawn and looking as though it regretted being attached to that particular body. They tire easily, have little vigor, and are usually badly constipated. Work or exercise causes discomfort and often distress in the abdominal region. The tongue is dry, coated, and often deeply furrowed. The mind is dull, often to a marked degree, and response to questions is often slow, showing a delayed cerebration. In fact they are quite like the picture of the old man suffering from prostatic obstruction who has forgotten his name or cannot name any president of the United States. There are, of course, varying degrees of the above symptoms, but these always appear in more or less marked prominence.

Second: Effect of activities. These patients nearly always give a history of discomfort or actual pain being brought on by various activities such as the harder housework, running a sewing machine, sweeping, scrubbing, ironing, washing the family laundry, walking, riding horseback, riding in an automobile or in a farm wagon, or in the heavier farm work, or in heavy manual

labor of any sort. Too, these sufferers have usually learned how to obtain relief from this discomfort, which is by lying down, often adding a hot water bag to their kidney regions, or by getting into the knee-chest position, or in getting their hips higher than their shoulders, all of which makes it possible for the kidneys to slide headward and to straighten out the ureter and thus permit of freer emptying of the kidney pelvis. You will often note that there is a lack of general good health and ruggedness, and they may walk unusually carefully as though they were afraid of jarring themselves.

Third: The stomach usually shows the loss of appetite, handles the food poorly, is often extremely atonic, is often lacking in the normal secretions to such an extent that it may give the clinical and laboratory picture of obstruction or malignancy. It may even retain food for as much as twenty-four hours. Nausea and vomiting may occur, and one or both are quite common. Sour eructations are common, but the most common symptom is the loss of appetite shown by the refusal of the stomach to take more food that will cause more metabolic toxins. In this connection I will mention two cases, one a male adult, a well developed Swedish carpenter, who vomited food taken as long as twenty-four hours previously. X-ray pictures were interpreted as showing a duodenal obstruction. Gastro-enterostomy was advised and accepted. At operation the stomach and duodenum were absolutely normal. The appendix was removed simply because we were in the abdomen. Some days later the patient passed a stone from the right kidney and obtained relief and was not bothered further with his stomach symptoms. The other, an extremely frail woman of seventy-four pounds, referred by Dr. Hylton of Douglas, Wyoming, gave a history of three abdominal operations, the last two for "adhesions", and had been urged to have another operation for more adhesions. She was merely a skeleton, could take no food, stomach would not even retain water. Dr. Tracy Love in consultation found in the stomach analysis the picture usually demanding surgical interference. In the

meantime I had radiographed both kidneys and found them both extremely low, ureters blocked and kidneys both badly damaged from obstruction and pyelitis. I operated both kidneys, one at a time under local anesthesia, as she was not in condition for a general anesthetic, and before she left the hospital, without any surgery upon the stomach, she was not only taking three full trays a day but was asking for a tray both in the forenoon and afternoon. She gained forty pounds in eight weeks and remained well. These two were among my early cases, and I have had many others showing similar lesions and equally good results.

The reflex disturbances of the stomach are similar to the disturbances caused by gall-stones or other chronic conditions of the gall-bladder or by real chronic appendicitis, only they may be much more pronounced.

The pains of kidneys are never in the back, but rather in the loin and more especially in the sides of the abdomen extending to the genitals and bladder region and down the thigh. I dare say that most people have gotten the idea that kidneys give pain in the back from the old familiar advertisements in the newspapers of the man trying to straighten up, holding both hands in the middle of his back. As a matter of fact this individual represents the man suffering from seminal vesiculitis or an old chronic prostate rather than from lesions of the kidneys themselves.

Effects upon the circulatory system: Under-elimination of the kidneys is one of the largest factors in high blood pressure. This pressure can usually be brought down by restricting the diet and prescribing one to two gallons of all liquids each twenty-four hours. So-called heart cases are quite often due to toxemias of underfunctioning kidneys. I recall the case of a robust young woman of nineteen who could not go up over Lookout mountain, which is about two thousand feet above our city, without fainting or else lying in the back seat of the automobile, and even then might faint. She had been told by competent medical men that she had a very bad heart. She had also badly ptosed kidneys with the usual

symptoms, and after a double nephropexy could not only go up over Lookout with comfort, but could go two thousand feet higher to Echo Lake and play ball and romp with the children of the family without the slightest distress. She also plays tennis and swims as any healthy young woman should.

Increased pulse rate or tachycardia is quite frequent. The pulse may run from ninety to one hundred and thirty or even one hundred and forty, and may simulate the tachycardia of hyperthyroidism. These toxins may cause a spasm of the cerebral vessels, so that the patient may have apparently a cerebral embolus or thrombosis. I recall the case of a man sixty-seven years of age who had attacks in which he would fall to the ground suddenly and lose control and use of his legs for a few days. His case was diagnosed by two excellent doctors, a competent neurologist and an internist, as sclerosis of the cord, which we believe is regarded as incurable. His kidney function was extremely low, but after he was put upon large quantities of fluid he regained and has kept his general good health now for seven years with the exception of a few attacks when he had neglected taking his usual amount of liquids or was under mental worry.

I may here take up the effect of this condition upon the blood itself. I have seen marked anemia accompanying this general malfunctioning so often that I have come to regard it as a part of the illness. The hemoglobin usually runs below eighty per cent and may go as low as sixty or even fifty-five in occasional cases. The patients may and often do faint upon slight provocation, the explanation for this probably lying in the fact that these retained toxins directly affect the blood-making organs. At any rate I do know that the anemia cannot be cured or even benefited greatly until the functioning of the kidneys is restored, and then it responds readily to the usual treatment for anemia. The heart itself shows the usual evidence of anemia from any cause.

Movable kidneys in pregnancy is a very important and interesting subject, and many, if not quite all, of the kidney

troubles in pregnancy are directly due to this condition. At any rate it must always be excluded when such symptoms occur. It is my belief that no woman with movable kidneys should become pregnant, and if she does then these should be corrected by operation early in the pregnancy. I have operated a number of these cases in pregnancy and have never had a miscarriage follow the operation. I regard special preparation of the patient as necessary to prevent this unfortunate result. A woman with movable kidneys almost always complains of the kidney pains being worst at the time of the menses, the explanation of this lying, we believe, in the fact that there is a close connection between the kidneys and the pelvic organs by way of the sympathetic nervous system, and to the fact that the patient is nervously upset at the time. Its occurrence is practically constant, and I regard it as typical, but likely to be a factor in mistaken diagnosis of pelvic lesions.

Uremia is of two types, acute and chronic. There has been some dispute as to what is the real cause of uremia, as to whether the toxic substances causing uremia are the retained normal end products of metabolism or whether they are abnormal poisons formed in disease. It is my belief that both enter into the severer types of uremia, that there may be, and is, an accumulation of the normal waste products, and that these alone can produce deep uremia and death. Also there seems to be no doubt but that severe intercurrent illness or an operation may add to a chronic uremia and precipitate uremic convulsions and death. The retention of toxins may be so much that the kidneys are overwhelmed by the excess of toxins in the blood stream. I often liken the kidney function to an automobile. You can drive it all the time upon good roads, you can drive it with some difficulty in mud an inch deep and in deeper mud with more difficulty, but if the wheels are in mud a foot deep your motive power is overwhelmed. So the toxins in the blood stream may reach so high a percentage that the kidney function is overwhelmed and acute uremia results.

Effects upon the central nervous system:

Headaches are extremely common. These may be transient or very prolonged and severe, constituting what is known as sick headaches. We must remember that we have the effects of marked constipation which always accompanies this condition, for we are dealing usually with a general enterop-
tosis of which constipation is nearly always a part. Purging usually helps temporarily, but the use of cathartics in America is overdone, and is a pernicious custom and one for which the medical profession is generally at fault, for it is so much easier to prescribe a cathartic than it is to restore the patient to normal functioning of the bowels. I know of nothing more harmful than the regular use of cathartics, and we should bend our efforts toward obtaining normal and regular evacuations of the bowels, thus endeavoring to restore the normal physiology of the intestinal tract. This can be done by proper diet, large quantities of fluids, and proper habits of the individual in caring for the bowels. I sometimes wish that cathartics had never been found. I wish that newspapers were prohibited by law from displaying advertisements of these drugs the same as they are prohibited from advertising drugs containing opiates. I wish that doctors would use a few simple rules of the physiology of eating and elimination and not be made the tools of overzealous, so-called therapeutic houses to foist their drugs upon the profession and later by advertisements directly upon the public. Dizziness, homonymous hemianopsia, and even partial blindness are frequent evidences of this self-intoxication. Convulsions are not unusual; melancholia, and even dementia percoz may be found as the direct results of this long continued poisoning of the body. It is undoubtedly true, as several neurologists have told me, that a considerable percentage of the inmates of our insane asylums is made up of individuals who have been toxic so long that the brain finally breaks under the strain forced upon it by retained toxins, and cannot function sufficiently for the patient to remain in the class of reasonably sane individuals. I am sure that the percentage of insanity may be reduced very materially by establishing nor-

mal animal physiology in these patients in the early stages of their mental difficulties.

Now a word as to the use of various drugs to test kidney function. It is my opinion that their value is extremely overestimated, and on the whole they should not be used, or at least should not be regarded of the value usually placed upon them. In the first place they are an abnormal product in the body and there is not a sufficient constant relation between the ability of the kidney to excrete them and its ability to excrete the normal waste products to justify that we place our judgment of a case upon this data. I believe that we can and should be able to know when a patient is sick from his general appearance. Every veterinary and most every farmer and stockman can go out into a herd of hogs, sheep, cattle or horses and pick out the sick animals by their general appearance, their lack of appetite, the lack of luster of their eyes, the roughness and shagginess of their hair, the dryness of their mucous membranes, the appearance of their excreta, the dryness, splitting and scaling of their hoofs and horns, their general lack of vitality, and the way they walk when compelled to move about. I do not believe it unreasonable that we should expect as much ability in a doctor as is usually found in a veterinarian or stockman. The chemistry of the blood is extremely valuable and offers the most hope for standardization in estimating function. We must remember that it is not what the kidneys do eliminate that is important, but what they do not eliminate, in estimating disease or functional ability.

The treatment of these conditions has two phases, surgical and medical. The surgical I described to you last year and consists in restoring the kidneys to their proper position and fastening them there and in freeing the ureter of all bands of adhesions or attachments and dilating of strictured area, thus restoring a free outflow of the urine to the bladder. After this is done normal physiology of all the metabolic processes must be restored by a sufficient amount of liquids, by proper diet, and regularity of the bowels by careful directions toward this end.

I believe we can assert that the story of the kidneys has not half been told, that they have an, as yet, unknown relationship to the general metabolism of the body in all its phases. I believe that a retention in small amounts of its waste products produces a much more profound effect upon the function of other organs than we have heretofore recognized, that the kidney is a vital organ in a wider sense than the simple elimination of certain waste materials. It is evident that the sympathetic nervous system plays a most delicate part in keeping a good balance between the several functions of our body, and at the same time responds just as quickly to an unbalance between these. It only remains for us to perfect ourselves in the recognition of these manifestations.

DISCUSSION

Tracy R. Love, Denver: I have been most interested in hearing Dr. Fowler's presentation of this most interesting subject, since I have discussed with him many of these cases and watched his results for many years.

Dr. Fowler suggests that the general surgeon should keep in mind the matter of ptosed kidneys, but I wish to suggest that it is just as important for the general practitioner and diagnostician to also keep in mind the symptoms of ptosed kidneys which he has briefly outlined to you, and I believe these cases have frequently come to the general practitioner and are, unfortunately, too often overlooked. They are overlooked because of the similarity of symptoms to those of other conditions more frequently found. It is easy to make a diagnosis of anemia and treat a patient for such without finding the underlying cause. It is easy to treat such cases for gastro-intestinal disorders and operate for chronic appendicitis, while at the same time the underlying true cause remains unnoticed. I have seen many such cases which have benefited operated but unbenefited because a low kidney was entirely overlooked. I do not mean by this that it was not necessary or right to take out, for instance, a chronic appendix, but simply that a very important part of the trouble was really low kidneys. I have in mind, for instance, a school teacher who was frequently annoyed with very severe attacks of pain in the left hypochondrium. When I first saw her she had been operated for chronic appendicitis, and at a second operation had had the gall bladder removed for this same pain. An x-ray of the kidney demonstrated the fact that the left kidney dropped down sufficiently to cause a sharp angulation of the ureter, not more than two inches below the pelvis. I remember another case which came to me for chronic colitis with pain in the right lower quadrant. She had had the appendix removed four years previously without relief. After studying over her for some time, I concluded that the right kidney was at fault. X-ray showed the right kidney down and slow to empty. She was very anemic, blood pressure 90. Operated 1921, since which time she

has not suffered with pain in the right side or digestive disturbance. I have recently had a case operated who came to me with a diagnosis of chronic appendicitis. The patient wished to know my opinion as to the advisability of taking out the appendix. I was not satisfied that the appendix alone accounted for the symptoms, which were loss of flesh and strength, loss of appetite, anemia and pain in the right side. I could not feel the lower pole of the right kidney, it was sensitive to pressure. An x-ray taken in the upright position demonstrated the fact that the kidney rested on the brim of the pelvis when the patient was standing. The appendix was removed and the kidney was fastened up and the patient is free from pain and regaining her health rapidly.

I may say in conclusion, I do not feel that any general physical examination is complete unless the question of ptosis of one or both kidneys has been given due consideration.

Vincent J. Keating, Sheridan, Wyo.: In discussing Dr. Fowler's paper, I will relate my own experience in order to show how closely a prolapsed kidney simulates an appendix.

As a boy of about ten years of age, I had an attack of what was diagnosed as appendicitis lasting over a period of twenty-four hours. During that period, I did not void any urine; but, when I did at the end of the twenty-four hours, I voided approximately two quarts with immediate relief.

I do not mean to say, however, that the kidney held two quarts of urine; but the back-flow and obstruction was relieved and the kidney had a chance to drain.

The soreness remained in my side for about a week; and from then until about two months ago, when I had the kidney which was down in the pelvis put back in position, I did have periodic attacks of discomfort and pain in my right side, which I always blamed on the appendix. Since Dr. Fowler put the kidney in position, the so-called appendicitis has disappeared entirely and instead of voiding sixteen ounces of urine a day, I now void sixty to one hundred, depending on the intake of liquids. I might also add that a troublesome digestive disturbance, which I had all of these years, has been practically cured.

I mention this history to demonstrate how careful we should be in our differential diagnoses of chronic appendicitis.

ANOTHER DAY

Another day! And another day
A slow built chain of days
With its first links laid in the mists of time
Each locked to the next without reason or rhyme
But the last link lies in my lap always.

Lies in my lap that I may do
My will with it as it lies
Leave it alone or burnish it bright
Yet rusty or cunningly carved aright
It holds me that I may not rise.

I may not rise from my lonely seat
Set in the lonesome slough
Midst others' chains whom I may not greet
Who have no fashion of greeting me
Who is the friend that will set me free?
As Azrael! Is it thou?

D. P. MAYHEW.

PULMONARY TUBERCULOSIS IN CHILDREN.*

S. W. SCHAEFER, M.D.
COLORADO SPRINGS, COLORADO

During the last few years it has so happened that a considerable number of children have come under my observation. The result of their study and examination has been so much at variance with my former ideas of tuberculous disease in children as to suggest the possibility of its being of sufficient interest to report to this meeting with the hope that it would at least provoke some interesting discussion.

The one very definite idea about tuberculosis that I obtained in the medical school, some fifteen years ago, was that in childhood the tubercle bacillus attacked the lymph glands, the bones, and the joints, while in adult life the lungs were especially prone to infection. Osler in his "Practice of Medicine", says: "The organs of the body are variously affected by tuberculosis. In adults the lungs may be regarded as the seat of election: in children the lymph glands, bones and joints." In Osler's "Modern Medicine," published in 1913, in that very delightful article on the "History and Etiology of Tuberculosis," by the beloved dean of American phthisiology, Dr. E. R. Baldwin, occurs this paragraph, "The resistance to tuberculosis varies with age and is least in childhood, when the tissues readily permit the infection to enter at various places and be more easily distributed. The lymphatic, meningeal, bone, and joint forms of the disease predominate in early life, but after the tenth year the pulmonary form increases in frequency." (Osler, M. M., Vol. 1, p. 319.) Holt in his "Diseases of Infancy and Childhood" (p. 1079), says: "In children who have passed the seventh or eighth year the pathological process resembles that seen in adults, but in younger children, and especially in infants, nothing corresponding to it is met with." Dr. H. R. M. Landis, of the Phipps Institute, says, in an excellent article in Oxford Medicine: "While it is perfectly true that at the age period between three and four and adoles-

cence, the implantation of the tubercle bacillus is an extremely common occurrence, clinical tuberculosis of the lungs is an unusual manifestation." However, the report of a committee of the National Tuberculosis Association, of which Dr. Landis was a member, on "Clinical and X-ray Findings in the Chests of Normal Children", which was presented at the meeting of the National Tuberculosis Association in 1922, has led to a much more intelligent study of pulmonary lesions in children.

In this connection a study of the statistics of the Free Tuberculosis Clinic in Colorado Springs is of interest. From April 8, 1919, to September 1, 1924, there had been examined 1,474 patients. Of these, 469 were children and 1,005 were adults. Of the 469 children, a diagnosis of active tuberculosis in some form was made in 63; of the 1,005 adults, active tuberculosis was diagnosed in 482. However, these 63 children with the diagnosis of tuberculosis were divided as follows:

Pulmonary: 53.

Glandular: 8.

Bone: 2.

As can be seen, quite a different picture from what is usually expected. An examination of the age groupings in this group of children with pulmonary tuberculosis is also of interest in that most of them are under 10 years of age. There were eleven under 5 years of age. Of these three were 1 year old; one, 2 years; three, 3 years; four, 4 years old. Between 5 and 10 years, twenty-eight, and between 10 and 15 years, twenty-four. Another fact of importance is that only in the last year have anything like routine x-ray examinations been made at the clinic, and, as I shall try to bring out later, in most cases of pulmonary tuberculosis in children an x-ray picture is a very necessary aid in the diagnosis. If more x-ray examinations had been made, it is possible an even larger proportion of children examined would have been found tuberculous. In my private practice the larger percentage of

*Read at the annual meeting of the Colorado State Medical Society, October 7, 8, 9, 1924.

pulmonary over non-pulmonary tuberculous disease is practically the same as at the clinic.

These children are usually brought to us for examination because they are under weight, have a slight cough, or what is an even more common complaint, that they are cross and irritable, restless in their sleep, and in general, hard to get along with, or because of active tuberculosis in some other member of the family. Of course, a careful history should always be taken, especially in regard to any direct exposure to infection in the family or otherwise (among the 63 cases in the clinic 37 gave a history of direct exposure); and careful inquiry should be made as to recent acute respiratory infections and measles, for these latter often produce changes in the lungs that may be very confusing both on physical and radiographic examination.

On examination, these children usually have flat, narrow chests with winged scapulae, but this is often not at all marked, although they are practically always more or less under weight. Palpable post-cervical glands, not very large, are extremely common, but the acute large swollen glands extremely rare. In the sixty-three cases at the clinic a note of enlarged glands was made in five only. Tonsils must, of course, be inspected and ruled out. Tuberculides, if carefully looked for, can usually be found. It is remarkable how often the chest examination is practically absolutely negative. There may perhaps be roughened and prolonged respiratory murmur at one or both apices, or in the interscapular space, but such changes from the normal are so common in children that they are not sufficient for making a diagnosis. If they are accompanied by a few crepitant or subcrepitant rales, and an acute cold can be ruled out, we are much more suspicious. An x-ray examination is at once ordered, and a careful record of the patient's temperature kept for a week—at 8 a. m., 12 noon, 4 and 8 p. m.—the child being kept lying quietly for at least a half hour beforehand, and the thermometer being kept in the mouth at least five minutes, or if a rectal temperature is taken, for three minutes. The necessity

for keeping the patient quiet for a half hour beforehand should be emphasized, as children's temperatures vary so easily, and especially after exercise. If the mouth temperature is regularly 99 or over, or the rectal temperature over 99.4 every day in the week, we are extremely suspicious and look very carefully for further evidence. The question of what is elevation of temperature in a child is even harder to answer than in an adult, as the temperature in children so easily goes up from so many causes, but if it is carefully taken under the restrictions as just suggested, and is elevated to 99 (mouth) or 99.6 (rectal) not once or twice in the week but at least on five or six days out of the seven, I think we are justified in deciding that fever is present. However, the elevation of temperature is not often as low as this minimum. The normal difference between the mouth and rectal readings in children has also never been satisfactorily decided but, in my experience, when carefully done it is not over 0.6 or 0.8 of a degree.

Of equal importance with the observation of the temperature curve, is the examination and interpretation of the radiographic picture. There is practically always a thickening of the hili with the presence of opaque deposits. Radiating from one or both hili are one or more thickened, often beaded peribronchial shadows reaching to the apex or the periphery of the central portion of the lung. And very commonly along with or between these are shadows that are interpreted as showing a parenchymatous infiltration of greater or lesser extent. The radiographic findings in the chests of these children are in many cases remarkably similar to those found in adult chests with lesions of a similar classification, and, in a few cases, both on physical and x-ray examination the child may present the typical picture of an adult lesion.

The majority of these children do remarkably well when given the proper care. Unless the temperature is more than 99.4 (mouth) or 100 (rectal) they are allowed to go to school for a half day, preferably to an open air one, and should have a fifteen-minute rest, and a glass of milk in the

middle of the morning. In the afternoon they stay in bed on a sleeping porch for two or three hours, and retire early at night. Strenuous games or exercises are prohibited, but one cannot be too strict and have the child happy and in a healthful frame of mind, both of which are of great importance. These children are of a very high-strung, nervous temperament and must be handled most carefully. One of the first signs of improvement as they begin to lose their fever is that they are much nicer children to live with, and that they are beginning to look plump, and put on weight. Such children should definitely be "half day children". These children are in all probability the ones who will go on to the development of chronic ulcerative pulmonary lesions in adult life unless their initial lesion is positively healed. While the majority of children are probably infected with the tubercle bacillus, the majority of children do not have symptoms or fever while developing their immunity. The children in this group must be those who have the least resistance to the tubercle bacillus, whose tissues are especially vulnerable to the attack, and whose bodily defenses need outside help in building up an immunity unless they would succumb—and this outside help we can give by modified rest out of doors, a plentiful food supply, and, one of the greatest helps, heliotherapy in the form of open air sunbaths which are a most valuable aid. I have often wondered how many of Dr. Emerson's undernourished children who respond so remarkably to rest and hyperalimentation would, if properly studied by temperature observation and the x-ray, fall into this group.

There are so many interesting cases with unusual sidelights that it is difficult to know just which ones to report. Among the first children under my care were those of a family of five—the oldest being twelve—and three of them showed definite pulmonary signs the little girl of four having a lesion of the adult type with numerous rales—yet all of them have done well, and it has been seven years since I first saw them. During the last five they have been back in their Pacific coast city home. They were

all probably infected from a devoted Scotch nurse who had been in the family for ten years, and who on examination showed a definite lesion, with numerous bacilli in her sputum.

Another child of five I saw in consultation with Drs. Forster and Webb, to whom I am indebted for permission to report. She was taken ill in a large eastern city in December, 1922, with an acute respiratory trouble with very high fever. This was followed by a peculiar skin eruption, which was diagnosed as being due to some food allergy, and she was starved for several weeks with gradual disappearance of the skin eruption, but without effect on the cough or fever. She was under the care of and seen by extremely able clinicians but not until the last of April, four months after the onset of the illness, was pulmonary tuberculosis suspected. The sputum was examined and found loaded with tubercle bacilli. She was at once brought to Colorado Springs, and had absolute rest and the best of care and attention. When I first saw her she had a lesion of the adult far advanced type with cavitation in the left lung, and a less marked lesion in the right. Under the routine care she rapidly became worse and rather in desperation it was decided to induce artificial pneumothorax. This was successfully performed in June and for two months she was definitely better, with lower temperature and diminished cough and expectoration. Then in September she developed an intestinal lesion and from that time went steadily down until her death this past May. So far as I have been able to discover this is the youngest patient on record on whom artificial pneumothorax has been induced. The question naturally arises as to what the outcome might have been if the diagnosis had been made in December or January instead of in April—but we have not as a rule been accustomed to think of pulmonary tuberculosis in children. This case is, of course, an exceptional one.

Far more common and much more of a type is the following one: A school child of eleven years, whose mother brought her in because she was so irritable, talked in her sleep, and was under weight. On examina-

tion the typical flat, narrow chest, although the child had rosy, round cheeks and looked well; 12 per cent under weight. Examination of the chest showed slight impairment of percussion note at right apex with a few crepitant rales in first and second interspace. Temperature 99.6 (m.) pulse 100. X-ray showed thickened, beaded peribronchial shadow to right apex with slight parenchymatous infiltration in first and second interspace. The child was allowed to continue in the open air school, getting home at 1 o'clock; the afternoon in bed; retired at 8:30. She gradually lost her fever, quickly gained in weight, and the mother tells me that the change in her disposition for the better has been most remarkable.

In conclusion I wish to emphasize—

1. That there is a relatively high percentage of pulmonary tuberculosis in children.
2. The importance of careful temperature observation.
3. The importance of careful x-ray examination.
4. These children do remarkably well if given the proper chance.

I wish also to express my indebtedness to Miss Ethel Torrance, the Social Service worker at the Clinic, for her interest in these children, and her help in going over the records.

DISCUSSION

Emanuel Friedman, Denver: I think that we all agree with Dr. Schaefer that pulmonary tuberculosis in childhood is more common than is generally believed. It is interesting to investigate the reasons why a diagnosis of pulmonary tuberculosis is not made more frequently than is the case. One of the reasons, of course, and this applies especially in infancy and early childhood, is that we cannot obtain the co-operation of the young child; and for the detection of the very early lesions, the co-operation of the patient must be enlisted. Another reason is that the physical signs in the normal chest of the infant and young child are so strikingly different from the physical signs we are accustomed to find in the adult. Hence a good deal of confusion follows if we try to diagnose pulmonary tuberculosis in children by the standards which obtain for the adult. A third reason is that without the presence of tubercle bacilli, and we know how very difficult it is to isolate these organisms in the young, a diagnosis of tuberculosis must generally remain problematical; because there are so many conditions in childhood, and especially in infancy, which mimic tuberculosis very closely. However, if we bear in mind the fact that tuberculosis in infancy and childhood is a relatively common condition, we are going to diagnose it far more frequently than

we have in the past. It is well to remember that tuberculosis in infancy is, both from the standpoint of symptoms and signs, almost never like that of tuberculosis in the adult. The infant does not have any marked resistance to the tubercle bacillus; hence any infection is far more likely to become generalized throughout the lungs, and perhaps throughout the body, than in the adult. As a result we have the miliary type of tuberculosis in the infant and the broncho-pneumonic type, and neither can be diagnosed in life with any degree of assurance. The miliary type resembles either a case of marasmus or perhaps a severe case of bronchitis. In the presence of a positive tuberculin test, one would naturally think that the difficulty may be tuberculous in character. The tuberculous broncho-pneumonia is almost never diagnosed as such. It is almost invariably taken to be, in the early stages, a simple broncho-pneumonia. After the lapse of several weeks, and the expected improvement fails to set in, then only do we think that the condition might be a more serious one than we had at first supposed. The doctor emphasized the value of the x-rays in diagnosis. I believe we are far more often misled into a diagnosis of tuberculosis by their aid when it is not present than we are apt to overlook it without their help. Nothing has been said about the Von Pirquet test. It is of extreme value in helping us to arrive at a diagnosis, because a positive Von Pirquet in infants, in the presence of symptoms that are suspicious of tuberculosis, almost clinches the diagnosis. I would like to say, on the basis of what little experience I have had, that tuberculosis in Colorado is not nearly as frequent as it is in a great many other localities in this country and abroad. Let me give you a few examples in support of this belief: In the last five years I have only seen four cases of tuberculous meningitis in infants or children; and three of those were seen in the practice of other physicians. We know that an infant afflicted with tuberculosis is very prone to develop a terminal tuberculous meningitis, which is usually not overlooked because of the markedly typical symptoms. In the same period I have seen only six instances of the adult type of tuberculosis and only two developed the trouble in Colorado; and the adult type of pulmonary tuberculosis, seen in children anywhere from ten or eleven and upwards, is readily recognized because it gives rise to signs and symptoms quite like those met with in the adult.

F. P. Gengenbach, Denver: It is quite evident that we have to revise, and not take too seriously some of the things we read in the text books. We have had to do that with typhoid fever in reference to early childhood. We have also had to learn that the same thing is true of tuberculosis. Now, Dr. Schaefer in his paper laid great emphasis on the x-ray findings. I am frank to say that the x-ray man, as Dr. Friedman has implied, makes the diagnosis of tuberculosis more often than I do. Perhaps there is a reason for that. A physical examination of a young child is very unsatisfactory, and unless we get very definite signs, how are we going to make a diagnosis? However, the x-ray findings, reported as being positive for tuberculosis, are practically the same as the x-ray findings that you see after other respiratory infections, especially influenza and measles, and sometimes after whooping cough, so that we must have some other form of differentiation. Now, the one other form I know of is the skin test. It does not seem logical to me that a child should have a negative skin test. If all these tests are negative, it seems to me that one is not

warranted in making a diagnosis of pulmonary tuberculosis from x-ray findings alone. One of the points I feel ought to be brought out in the class of children that Dr. Schaefer has referred to, and which has been and is being emphasized more and more as one of the earliest signs of possible tuberculosis in children, is the fatigue syndrome, probably the earliest symptom of all; and yet it can easily be misinterpreted. You take these undernourished children that we refer to constantly now, and about which we are hearing so much, a great many of those children have this fatigue syndrome. They are under weight, they are pale and anemic. They are always tired, and a great many of them have a little temperature, and yet investigation of this class of children shows that only about eight or ten per cent of them show any sign of tuberculosis. If this is true, it seems to me that we might readily question the positive diagnosis of tuberculosis in some of the cases which Dr. Schaefer reports. Surely his proportion of positive lung findings, as compared with positive bone and gland findings, is quite out of proportion to anything I have ever read in the literature. It may be that down at the Springs they have, as we know, many people with tuberculosis, and there is perhaps greater opportunity for infection. In the ages that Dr. Schaefer gives, if children do get it, they might more readily show signs of the adult type of tuberculosis.

W. W. Wasson, Denver: I think we all agree, to begin with, that there is one thing we must depend upon in our diagnosis of tuberculosis in children, and that is the clinical findings. X-ray is coming into certain prominence in children. It bids fair in the course of years to take the same place in diagnosis of tuberculosis in children that it does in the adult. The doctors, in discussing x-ray here, are perfectly correct, in my opinion. X-ray diagnosis in children has been a failure in the past because we were not equal to the situation. We were unable to make proper exposures, and we were unable to say what we had upon the film, a diagnosis being made of a pathological bronchus, provided that bronchus was in a certain position, which to my mind was all wrong. I would like to show a couple of slides, with that in mind. I do not believe that a bronchus in a certain position, or hilus of certain width, should be diagnosed as pathological. At the present time we are in a different position, and it is impossible to get the same clear pictures of children that we do of adults, but here is a confusing situation we run into: We have shadows there, a tremendous number of shadows, about the hilus in a baby twenty-two months old. They are too young to give any physical signs. To throw a little light upon this subject, we have been studying in the past three years a series of children. This (indicating on screen) is a baby three hours old, and I wish to call your attention to certain nodes about the hilus. What can we say about them? Here (indicating on screen) is a baby two months old. This is a post-mortem specimen with inflation of the lungs. I want to call your attention to those nodes. The Germans have told us that the bronchus in children cannot be shown. I wish to call your attention to these bronchi (indicating on screen). I do not show any of these to confuse you in your interpretation of an adult's chest, but we must learn what we have.

O. M. Gilbert, Boulder: I think there is hardly a more important subject which will come before us at this time than that of trying to determine just when the usual infection in childhood be-

comes a clinical tuberculosis, and I am sure that is what Dr. Schaefer is helping us to determine. As has been said, the physical findings are very misleading and cannot be depended upon as a rule until the condition is much more advanced than is necessary for diagnosis at a time to be helpful to the child. I think it is particularly confusing, since x-ray has helped us on the one hand, but confused us on the other, so to speak, because you get an x-ray which shows a little peri-bronchial thickening, perhaps half way to the periphery. What are you going to say about it? How are you going to determine whether it is, or is not? As Dr. Wasson has so well shown, in some of these pictures, you might find those shadows in children who are perfectly normal. And furthermore, granted that tuberculous infection is present, as established by the tuberculin test, even then you are still in doubt as to whether it is merely the universal tuberculous infection, with some incidental thickening of the bronchi, or whether it is a clinical process. Particularly is that true around the paravertebral trunk, in which you get a little cloudiness a short distance from the bronchus, and it is very difficult to say just where a parenchymatous process begins. The work of William Snow Miller, of the University of Wisconsin, has helped us a great deal. As to the skin test, we know it may be helpful, but on the other hand it may be misleading just as was shown by a case which I hope Dr. Cattermole will speak of, and which I want to speak of, in which a little girl came from one of the mid-west states without a diagnosis, and tuberculosis, the doctor said, had been excluded, because he had the sputum test, and the tuberculin test, and they were both negative. The little girl proved to have tuberculosis and died in a short time, and the doctor was very much put out that we had found it to be tuberculosis, because he said both tests, that were well recognized, were negative. The child had no positive sputum, and the tuberculin test was negative. What had he done? He had taken the sputum early in the course of the illness, which in children is almost never positive, and then very late, after the child was overwhelmed with tuberculosis, he had made a tuberculin test and it was negative. I quote this as being an instance of the misuse of excellent clinical aids.

G. H. Cattermole, Boulder: This case which Dr. Gilbert speaks of, was a rare one. The child was only a year old, as I remember it, and showed a cavity the size of an egg at autopsy. The child had been sick but a short time. In using the skin test for a diagnosis of tuberculosis, we must remember that until the child has had the disease for some time, a skin test will not be positive. They have to acquire some degree of immunity, or some immune bodies, before the test is positive. So the child may have rather advanced tuberculosis, or it may die of miliary tuberculosis without giving a positive skin test. On the other hand, the earliest diagnosis, probably, of tuberculosis in children is that from the physical signs of a recurring bronchial adenitis. These children will show symptoms at the hilus. Every time they have a cold there is a recurring enlargement of the bronchial nodes, with definite signs, and if we keep that in mind, it will be one of the most valuable early diagnostic signs of tuberculosis in children. It seems to me that there is no subject with which we have to deal that is more important than early recognition of tuberculosis in childhood. No doubt a great many of the later cases of tuberculosis develop from this childhood infection and if heliotherapy is valuable in any stage of tuber-

culosis, it is especially so in children. I see no reason why it should not be used then, even though it is not used in cases of advanced pulmonary disease in adults, where they are sensitized, and where they show fever following the use of heliotherapy. In children tuberculosis is curable, and heliotherapy probably can be used to much greater advantage than in chronic pulmonary cases.

Saling Simon, Denver: I just want to say a few words in regard to a point that was brought out by Dr. Schaefer in his paper. Since so many of our methods, including x-ray and a properly made tuberculin skin test, fail us in making a clinical diagnosis of pulmonary tuberculosis in children, we are forced to fall back upon a properly taken history which in my opinion often helps us to a correct diagnosis. Here in Colorado where there are so many tuberculous adults, children are often subjected to exposure from which an infection may result. Hence when there is a doubt as to the possible existence of pulmonary tuberculosis a history of exposure to tuberculosis in the family, where tuberculosis may be present, will prove immensely helpful in the final diagnosis.

Dr. Schaefer (closing): In my paper I had hoped I had sufficiently emphasized the fact that we have never made a diagnosis of pulmonary tuberculosis on an x-ray picture showing only hilus involvement: we have made a positive diagnosis in the peribronchial type only when symptoms and elevation of temperature were also present. The Von Pirquet test has not been regularly done at the clinic, but in those cases in which it was done, it was always positive. In my private practice, the Von Pirquet test was so commonly positive that I went much more by the severity of the reaction rather than by whether or not the test was present. The intracutaneous test we have not used, but we will try it out with much interest.

As to the elevation of temperature being due to fatigue, as suggested by Dr. Gengenbach, we have, I think, ruled that out by having these children rest while under diagnostic observation. In many instances these children were brought to the clinic by Social Service workers who had found them exposed to infection from other members of the family with active tuberculosis.

I am very much interested in Dr. Wasson's pictures of the infant's chest, and will look forward to the future development of his work. In some cases we have seen the areas of what we regard as parenchymatous infiltration clear up as the child improved, just as in the chests of adults. has certainly been very helpful to me.

THE GORGAS MEMORIAL

During the past year, throughout the United States, the work of organizing the Gorgas Memorial State Governing Committee has been progressing. In some states the response has been most enthusiastic, while in others considerable effort has been necessary to bring home to the doctors, the importance of this movement to them, individually and collectively. Inasmuch as the Gorgas Memorial is primarily a medical movement and as such must have the united support of the profession if it is to make the proper impression on the general public, we take this occasion to outline briefly the Gorgas plan and to request the co-operation of our colleagues in

bringing to a successful issue, this national health program.

We are planning to establish a Memorial for our former chief, Major General William Crawford Gorgas, not of marble or bronze, but a permanent living organization in the form of a great health foundation typical of his work in research and curative medicine, that will unite lay men and doctors in an intelligent effort to obtain better personal health—a health guild that will be supported and directed by the representatives of curative medicine.

The Gorgas Memorial consists of two phases:

1. An Institute in Panama for research in tropical diseases.
2. A health educational program in the United States and other countries that wish to co-operate and participate in the movement.

We are living in an age when people are knocking at all doors of knowledge and demanding that they be admitted. In the field of medicine who are so well fitted to meet this demand as those actually engaged in the practice of medicine? The doctors have a far more interesting and important message to deliver than any other group.

An organization cannot operate without funds. We are endeavoring to raise an endowment of \$5,000,000, the interest only of which will be utilized to carry on the work. The principal will be invested in trust securities and remain intact. None of the money thus obtained will be spent for buildings or equipment. The Republic of Panama has donated the site and guaranteed the initial buildings and equipment for the tropical research laboratories, in recognition of Gorgas' great work in Panama. Those invited to serve as Founder members of the State Governing Committees are requested as they accept membership on the committee to subscribe \$100 to the Endowment Fund, payable within two years. Every individual on the State Committee is a contributing member. When the medical nucleus of the organization is complete, a general appeal for funds will be made to the public.

Every doctor is requested to take a personal interest in the Gorgas program and to see that his community is adequately represented on the State Governing Committee. Each County Society should appoint officially at least one of its members to serve on the State Committee. This is one foundation that is controlled by the practitioners of curative medicine and as such should be supported by every practicing physician. Let us pull together, "the doctor for the doctor".

Frank Billings, Gilbert Fitz-Patrick, Seale Harris, W. H. G. Logan, Samuel J. Mixer, G. H. de Schweinitz, Rear Admiral E. R. Stitt, George Crile, William D. Haggard, Franklin Martin, William J. Mayo, Stuart McGuire, Ernst A. Sommer, Ray Lyman Wilbur, Surgeon General Hugh S. Cumming, Major General Merritte W. Ireland, C. Jeff Miller, Brigadier General Robert E. Noble, George David Stewart, Hugh Young, Medical Members, Board of Directors Gorgas Memorial Institute. Executive Offices: Chicago, Illinois.

Officers and lay members Board of Directors:

President Calvin Coolidge, Honorary President; Franklin Martin, Vice President; George M. Reynolds, Treasurer; W. J. Sennett, Asst. Treasurer; Silas Strawn, Attorney; Honorable R. J. Alfaro, Brigadier General Charles G. Dawes, Bernard Baruch, Tyson Dines, Samuel Gompers, W. P. G. Harding, Judge John Bassett Moore, Adolph S. Ochs, Pres. Beliasario Porras, Panama, Leo S. Rowe, Fred W. Upham.

SYSTOLE

There is no stasis in matters of endeavor.
—O. B. Broman.

There is nothing more certain in the world than coincidence.—Leonard Freeman.

In the last analysis the most precious role of the doctor is that of comforter.—Henry Sewall.

The egoist can be likened to an overinflated tire. He is hard, unyielding, takes the bumps badly, and often blows up with annoying results.—O. B. Broman.

Every orchestra leader once played second fiddle.—Glen Buck.

He who leaves God out of his reckoning does not know how to count.—Italian Proverb.

Talent is born in silence but character in the struggle of the world.—German Proverb.

There is an unchanging, silent life within every man that none knows but himself.—George Moore.

The method of scientific investigation is nothing but the expression of the necessary mode of working of the human mind—Thomas Huxley.

Yet if all cannot be of one mind, as who looks they should be? this doubtless is more wholesome, more prudent, and more Christian, that many be tolerated, rather than all compelled.—Milton.

Even if the sun should rise in the west, even if the lotus should boom on the peaks of the mountains, even if Meru should shake, even if fire should feel cold—the words of the good will surely never fail.—Sanskrit Proverb.

DIASTOLE

Miss Styleplus found her former Red Cross training so useful at this season of the year. It helped her so much with her Christmas packages.

Why Christian?—"What's your Christian name?" asked the sergeant of the new recruit.

"Abie Rosenbaum."—Contributed, R. A.

A young doctor was teaching his father to drive an automobile. The traffic got tight, and the car began to wobble.

"What shall I do?" exclaimed the old gentleman.

"Use your bean, dad, use your bean," remonstrated the boy.

"Well, quick, where is the damn thing?" came the excited answer.—Contributed, M. B.

"Why so glum, Bertie?"

"Well, a month ago it was music week; three weeks ago it was apple week; two weeks ago it was education week; last week it was cranberry week; and this week I've lost my calendar."

A doctor in a small southern town mentioned his bill to an old negro.

"Yassah, doctor, Ah's been owing dat money a long time", came the response.

"Well, Jim, I fixed your hand, so that you could go back to work, and cotton's bringing a good price."

"Yassuh, I knows all dat, and yo' sho' did do a pow'ful good job by me, doctah, and Ah 'preciates it. But, doctah, Ah ain't paid mah honest debts yit."—Contributed, A. T.

A patient who owes Doc a large bill has a real grudge against collectors. He says that one of these fellows is trying to make him keep up his payments on the piano when he has just started payments on his auto.

NEWS NOTES

Dr. William Whitridge Williams of Denver has been appointed a member of the Colorado State Board of Medical Examiners, to fill the vacancy occasioned by the death of Dr. A. C. Magruder.

The Colorado General Hospital opened its doors to patients December 15.

Dr. L. H. McKinnie of Colorado Springs was recently injured in an automobile accident.

Dr. E. W. Perrott of Denver has returned from a trip to the Grand Canyon.

Members of the Optimist's Club of Denver were recently the guests of Mr. G. A. Collins, superintendent of the Colorado General Hospital.

Dr. Cuthbert Powell was a recent visitor at the Mayo Clinic.

Dr. E. W. Collins of Denver is making a tour through Egypt.

Dr. H. A. Wheeler, formerly of Cope, has removed to Oregon.

The newly elected officers of the Denver General Hospital are Dr. W. H. Halley, president; Dr. C. T. Burnett, vice-president, and Dr. L. V. Sams, secretary.

Dr. Henry S. Cooper of Denver spent the Christmas holidays in California.

The following Colorado physicians attended the recent meeting of the Western Surgical Association at French Lick Springs: L. H. McKinnie, H. G. Wetherill, C. B. Lyman, W. W. Grant, G. B. Packard, Jr., and Cuthbert Powell.

Dr. James M. Shields spent the Christmas holidays in St. Louis.

The committee in charge of the scientific program for the next annual meeting of the State Society consists of Gerald B. Webb, J. H. Brown and E. D. Downing. The 1925 meeting will be held at Colorado Springs.

The tenth annual meeting of the Radiological Society of North America was held at Kansas City December 18. Dr. W. W. Wasson conducted a clinical conference on "Tuberculosis of the Lungs." Dr. James J. Waring read a paper on "The Relationship of the Radiological Diagnosis of Tuberculosis of the Lungs to the Clinical Diagnosis." Dr. Sanford Withers presented a paper on "Points of Interest in the Operation of the Oil-Immersed Coolidge Tubes at 200 K.V." Dr. S. B. Childs gave a paper on "Appendicitis and Lesions Complicating Its Diagnosis; Deductions From X-ray Determinations."

The State Board of County Commissioners were guests of the Colorado General Hospital December 17.

Dr. Henry Sewall has returned from Rochester, where he recently underwent an operation.

Dr. Edward Faber has returned from Texas, where he spent the Christmas holidays with relatives.

WANTADS

Office space available in Metropolitan Bldg., no equipment necessary, established Denver internist preferred. Apply Box 1, COLORADO MEDICINE, 509 Imperial Bldg., Denver.

For Rent—Physician's office well located, adjoining dental office and drug store, both of which are doing a good business. Apply Box 2, COLORADO MEDICINE, 509 Imperial Bldg., Denver.

NEW BOOKS

LAUGH IT OFF. By Strickland Gillilan, 12mo. Chicago. Forbes & Co., \$1.25 The ridiculousness of fears of all kind.

SIGMUND FREUD. By Fritz Wittels. 8vo. New York: Dodd, Mead & Co. \$3.50. His personality, teaching and his school.

THE HUMANE MOVEMENT IN THE UNITED STATES. By William J. Schultz. 8vo. New York: Longmans, Green & Co. Distinctive features of legislation and organized effort for animal and child protection during the years 1910-1922.

THE LAZY COLON. By Charles M. Campbell. 8vo. New York: The Educational Press. Newer methods and latest advances of science in the treatment of constipation.

THE BOOK OF BREAST-FEEDING. By Hester Viney. 12mo. New York: E. P. Dutton & Co. \$1.00. With a foreword by Dr. Eric Pritchard.

THE IDOL. By Dr. Cantala. 12mo. New York: Botwen Printing Company. The problem of the drug habit from the medical-social point of view.

THE STORY OF EARLY CHEMISTRY. By John Maxon Stillman. 8vo. New York: D. Appleton & Co. \$4.00. Development of chemical knowledge and science from the earliest beginnings to the close of the eighteenth century.

THE HAPPY BABY. By Dr. L. Emmett Holt. 12mo. New York: Dodd, Mead & Co. \$2.00. Seven articles on the care of babies, by various physicians.

BOOKS RECEIVED FOR REVIEW

DEVELOPMENTAL ANATOMY. A Text Book and Laboratory Manual of Embryology. By Leslie B. Arey. Philadelphia and London: W. B. Saunders Co.

ESSENTIALS OF PRESCRIPTION WRITING. Third Edition, Revised. By Cary Eggleston, M.D. Philadelphia and London: W. B. Saunders Co.

A MANUAL OF THE DISEASES OF THE NOSE, THROAT AND EAR. Fifth Edition, Thoroughly Revised. By E. B. Gleason, M.D. Philadelphia and London: W. B. Saunders Co.

HUMAN CONSTITUTION. A Consideration of Its Relationship to Disease. By George Draper, M.D. Philadelphia and London: W. B. Saunders Co.

OPERATIVE SURGERY. Volume 5. By Warren Stone Bickham, M.D., F.A.C.S. Philadelphia and London: W. B. Saunders Co.

THE SURGICAL CLINICS OF NORTH AMERICA. (Cleveland Clinic Number). Volume 4, Number 4. Philadelphia and London: W. B. Saunders Co.

OPERATIVE SURGERY. By Alfred T. Bazin, D.S.O., M.D. Montreal: Renouf Publishing Co.

NORMAL BONES AND JOINTS, Roentgenologically Considered. By Isidore Cohn, M.D., F.A.C.S. New York: Paul B. Hoeber, Inc.

FUNDAMENTALS OF HUMAN PHYSIOLOGY. By R. G. Pearce, B.A., M.D. Assisted in Third Edition by Dr. Norman B. Taylor. Third Edition. St. Louis: C. V. Mosby Co.

MAGAZINE ARTICLES

METHODS OF INCLUDING INTARVIN AND GLYCERYL MARGARATE IN THE DIEBETIC DIET. By May S. Reynolds and A. L. Malatt. *Journal of Home Economics*, December.

I'M DEAF BUT I DON'T LOOK IT. By Royal Brown. *Hearst's*, December.

THE BACKWARD CHILD. By G. K. Pratt, M.D. *Modern Priscilla*, January.

KEEP YOUR SNEEZE FROM THE CHILDREN. By C. G. Kerley, M.D. *McCall's*, January.

CRIME AND EUGENICS. By French Strother. *World's Work*, December.

CONQUEST OF SCARLET FEVER. By Ernest Gruening. *Harper's*, December.

KANSAS HAS A BIG IDEA. (Eugenics). By Ida C. Clarke. *Pictorial Review*, January.

YOU CAN'T WIN WITHOUT HEALTH. By Grantland Rice. *Collier's*, December 6.

THE LABORER'S LUNCH. By James Stevens. *Saturday Evening Post*, December 6.

RICKETS CURED BY VIOLET RAYS. *Current Opinion*, December.

CRIME COMPLEX. By H. E. Barnes. *Current Opinion*, December.

WHY ARGUE ABOUT EVOLUTION? By David Starr Jordon. *Collier's*, December 13.

TOO BUSY TO KEEP FIT? BUNK. *Collier's*, November 22.

LOOKING AHEAD. By H. W. Wiley. *Good Housekeeping*, December.

THE UNNECESSARY HANDICAP. (Constipation in Children). By Dr. H. L. K. Shaw. *Delineator*, January.

AMERICAN BOARD OF OTOLARYNGOLOGY

The American Board of Otolaryngology was organized in Chicago on November 10. The following constitute the board of directors: Drs. Harris P. Mosher, Boston, president; Frank R. Spencer, Boulder, Colo., vice president; Hanau W. Loeb, St. Louis, secretary and treasurer; Thomas E. Carmody, Denver; Joseph C. Beck, Chicago; Thomas H. Halsted, Syracuse, N. Y.; Robert C. Lynch, New Orleans; Burt R. Shurly, Detroit; Ross H. Skillern, Philadelphia; William P. Wherry, Omaha. The office of the Board is at 1402 South Grand Boulevard, St. Louis, Missouri. The Board comprises representatives of the five national otolaryngologic associations; the American Otolaryngological Society, the American Laryngological Association, the American Laryngological, Rhinological and Otolaryngological Society, the American Academy of Ophthalmology and Otolaryngology and the Section of Laryngology, Otology and Rhinology of the American Medical Association. The object of the association is to elevate the standard of otolaryngology, to familiarize the public with its aims and ideals, to protect the public against unqualified practitioners, to receive applications for examination in otolaryngology, to conduct examinations of such applicants, to issue certificate of qualification in otolaryngology and to perform such duties as will advance the cause of otolaryngology. The first examination will be held at the time of the meeting of the American Medical Association.

JACOB C. CHIPMAN

Dr. J. C. Chipman of Sterling, Colorado, died November 15, aged 63 years, at St. Joseph's hospital, after a late operation for perforated duodenal ulcer.

He was born at Eagle Creek, Kentucky, November 15, 1861. He received the degree of M. D. from the Kentucky School of Medicine at Louisville, in 1882, and practiced for seven years at Stuartsville, Ky. In 1892 he bought out the practice of Dr. J. N. Hall, at Sterling, succeeding him as local surgeon for the Union Pacific Railroad. He held this position for thirty-two years, and a similar one on the Burlington Railroad for sixteen years.

Dr. Chipman was a constant attendant at the meetings of the State Medical Society and one of its most faithful members. He held many positions of honor and trust in the society. He served for six years as a member of the State Board of Health, and filled most creditably many medical positions in his city and county. As the senior medical man of his portion of the state, he was looked up to and consulted by the whole of North-eastern Colorado.

The high esteem in which he was held in his community is shown by the fact that all the business houses of Sterling closed at the hour of his funeral. The attendance at the services was the greatest ever known in that section of the state.

Mrs. Chipman has been an invalid for years but is, happily, rather better in recent months. Three fine children, two sons and a daughter, survive. A brother, seventy-three years of age, still practices at Falmouth, Ky., and two nephews are also physicians.

The writer knew Dr. Chipman for almost a third of a century. No physician within his knowledge filled his niche in life more creditably, more skillfully or more honestly than he did. No one, excepting his patrons of so many years, can feel his loss more keenly than does the writer.

J. N. HALL.

IN MEMORIAM

Man is mortal, his Creator has given to him just a few short years of earthly existence in preparation for the great beyond from which there is no return. If one choose a life of service and ministry to his fellow men, wrought with hardship and bodily discomfort, and carries out that trust allowed him by his Maker, gaining the confidence, trust, and love of those thousands to whom service has been rendered, can we not say that such a life has been well worth the living and that the answer to the last call is a victorious response?

The members of the Northeast Colorado Medical Society recognize that in the death of their fellow member, Dr. Jacob C. Chipman, on November 15th, a great loss has come to the society. He was one of the original members of the society and has always endeavored to keep the society up to a high and professional standard and it is through his untiring efforts in the interest of the society that this organization is in existence today.

Therefore be it resolved that this memoriam be spread on the minutes of this society and that copies be sent to Mrs. Chipman and family, to Colorado Medicine, and to the Advocate.

DAVID PORTER MAYHEW

David Porter Mayhew came from Vermont, Martha's Vineyard and Pennsylvania extraction. His grandfather was one of six successive generations of ministers. His father was the first to break the ministerial succession. He was first Professor of Chemistry and then President of the Michigan State Normal School at Ypsilante. His mother was a ward of a pioneer copper and steel family that emigrated from Vermont. His childhood was more isolated than usual. He was not robust, and was given instruction by his father and mother up to his high school work. He was instructed in geometry when five, by means of geometric figures. Physics and manual training were a part of his daily life. The relationship of cause and effect was the basis of his mental training. Early a deep faith in the constancy of the relationship between any phenomenon and its cause became a part of his character. Through his high school life he was handicapped by an impaired heart but formed enduring friendships. From high school he, with a number of his classmates, went to Ann Arbor where he became a leader in his class, always championed by his "gang" of high school friends. His health returned, his heart completely compensated and for the first time he knew the glory of play and threw his energies into the work and sports of university life. Here he met Katherine Camp, who matched his intellectual hunger, his repartee, wit, humor, independence and psychic imagery with complemental faculties and gifts, with the result that their life together has filled each life with contentment and moved them to "Thoughts sublime that pierce the night like stars, and with their wild persistence urge man's search to vaster issues."

One year after graduation he won his master's degree with a thesis on "The time of Reflex Nervous Stimulation." Here he first showed his inventive skill by devising apparatus with which to conduct his experiments, which he has constantly used in his work. In recognition of his work he was given an assistantship to Professor Nancrede where he began his surgical work. After one year internship he went to the University of Pennsylvania hospital. Here under Dr. Max J. Stern he helped produce the first x-ray pictures of the chest made in this country. He returned to Detroit and began practice, developed a severe typhoid infection which was soon followed by a tubercular infection which brought him to Drs. Solly and Gildea. He made rapid improvement and soon went to the Apache Reservation in New Mexico and completed his cure while recuperating his finances by successful work among the Indians and white population. Later he entered practice with Drs. Solly and Gildea at Colorado Springs. The combination was a happy one, and here he did some of his best work. Using his experience with Dr. Stern he did some excellent pioneer work in the x-ray of the chest. Drs. Solly and Gildea furnished him with abundant material. With an induction coil with an 8-inch spark gap and a gas tube without regulator he had to make one to two minute exposures. He did this by having the patient hold his breath ten seconds, then cutting out the x-ray, he let the patient breathe and repeat the process without moving until the required exposure was made. In this way from 1902 to 1906 he made about 500 x-rays of the chest.

In 1916 he returned to Detroit and was placed

upon the staff of Harper Hospital. He tried to go with the Harper unit into the war but was rejected. In 1918 he was accepted, sent to Camp Greenleaf and was ready to embark when the Armistice was signed. While at Camp he passed an intelligence test with a thousand other doctors and was among the top five. No surprise to those who knew him. After the Armistice he was returned to Hospital No. 12 near Ashville, N. C. He was deeply interested in the work and camp life agreed with him but army life was not his way of living. After being mustered out of service he came back to Colorado Springs to work and live with us. He was a member of the A. M. A., and the Colorado State Medical Society. He was the first member from Colorado Springs to become a member of the Western Surgical Association and a fellow in the American College of Surgery. He was one of the faculty of the Colorado School of Tuberculosis and gave instruction in bone and joint tuberculosis. He was a member of the Colorado Association for the Study of Tuberculosis and of the staffs of Beth-El and Glockner Hospitals.

A personal word: For eight years we assisted each other in our surgical work. His knowledge of surgery, like all the rest of his mental content, was extensive and carefully classified in the order of cause and effect. When he made a diagnosis it rested upon definite data, analyzed in the light of his knowledge of physics, mathematics, chemistry, biology, human anatomy, physiology and pathology. He had the same faith in his diagnosis that he had in a solved mathematical problem. He knew what was the matter and if you did not, and said so, he had all patience in helping you. If you did not and pretended you did, God help you, Davy would not. With an attitude and a silence he created an atmosphere more penetrating than mustard gas. His intimate friendships were somewhat limited by this habit. If you had a diagnosis of your very own and it differed from Davy's and he had any respect for your opinions, you had a man's size job on your hands. It was hands down with the complete data on both sides, and in the analysis that followed the truth was soon discovered. He was a true sport and never tried to go beyond the facts. I have had much of the dross crucible out of my opinions by the heat of such conflicts. I have been slugged with his facts and logic, stung with his sarcasm, lashed with his wit and satire, but never touched with an ungenerous word. He was a most delightful companion. He did not prosper when he had to compete. He would not commercialize his manners or his knowledge. For these reasons he had vastly greater possibilities for service than were ever realized. He was always conscious that he had not fulfilled the expectations of his friends in the amount of work done, but this never tempted him from his ideals. He also felt that these friends knew little of the reaches and labor of his intellectual life, and thereby failed to give him credit for satisfactions he constantly enjoyed. His knowledge of history of art, music, literature and of all the physical sciences, combined with an artistic temperament produced the scholar, the scientist, the surgeon, the poet and the friend that it was my privilege to know. He was such a friend as could take an inventory of your moral, mental and physical debits and credits, hand you a discouraging balance sheet and still you would love him, so great was his charity.

GEO. A. BOYD.

Colorado Medicine

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EDITORIAL NOTES AND COMMENT

The Superfluous Health Board

Abolish the State Board of Health, says Clarence J. Morley, Colorado's new governor. It duplicates the work of the county boards and is an unnecessary expense.

The goal is economy—a laudable thing, provided we do not become lavish with life and health.

The difficulty with county boards is that they have no jurisdiction beyond their county borders. How could Denver, for instance, trace and control a milk-borne epidemic, if the milk came from another county? How could a city control its water supply if the water came from a distance? Here we have work of large scope, quite beyond the reach of local boards.

Nor can the county boards control epidemics. At one point we may have botulism, at another foot and mouth disease, and the petty board may not have facilities for diagnosis, let alone control. Without a state board of health, or a state health commissioner, we should be a menace to ourselves and our neighbors. If an epidemic got out of hand we should find ourselves quarantined by neighboring states, and should have purchased a sorry dilemma in our economy.

Goitre in Colorado

The United States Public Health Service has concluded a goitre survey of Colorado, and in its report presents the following conclusions and recommendations:

Conclusions

A study of the data thus far secured in

Colorado discloses the presence of considerable epidemic goitre in the state, particularly in the southwestern portion of the western slope.

The information available at present, while insufficient for comprehensive epidemiological study, is sufficiently accurate to warrant the application of appropriate measures for prophylaxis and treatment.

Recommendations

It is recommended to the Colorado State Board of Health that the following action be taken:

1. That thyroid surveys be made in a uniform manner in rural as well as urban districts throughout the state.

2. That general prophylaxis by means of iodized table salt be practiced.

3. That existing thyroid enlargements be treated by family physicians.

4. That goitre in the new born be prevented by the administration of iodine to prospective mothers during the first half of pregnancy.

5. That the results of all thyroid surveys be tabulated with a view to discovering the variations in endemic goitre prevalence in various parts of the state.

6. That the results of the state-wide thyroid surveys be studied with a view to discovering the underlying causes for the deficiency in iodine.

Standard Serum

The Health Committee of the League of Nations, in a report to be filed with the Council of the League, announces its plans

for standardizing anti-toxins and serums throughout the world. Last year agreements were reached for standardizing diphtheria anti-toxin, and it is expected that tetanus serum will be standardized during the present year.

Ethyl Gasoline

The much-discussed and much-feared ethyl gasoline has been subjected to numerous experiments by the Interior Department at the Pittsburgh experiment station of the Bureau of Mines. The results obtained with animals indicate that exhaust gases do not become appreciably more dangerous from the addition of tetraethyl lead to gasoline.

Telegraphed Finger Prints

The London police have successfully tested a system by which criminals' finger prints can be telegraphed to any part of the world. Recently two suspects were under arrest. One was known to have a criminal record in Australia; nothing was known of the other man. The finger prints of the second, however, were wired to the chief of police at Sydney, and on the following morning the cable brought a list of his previous convictions. These were read in open court, and the man was so staggered that he confessed his identity. A prison sentence followed.

Guy's Anniversary

On January 6th Guy's Hospital, London, celebrated its two hundredth anniversary. The original hospital was built by Thomas Guy at a cost of £14,000, and was opened "for the reception of 400 poor sick persons or upwards labouring under any distempers, infirmities, or disorders thought capable of relief by physick or surgery."

Last year the hospital treated nearly ten thousand in-patients. Visits by out-patients to the hospital numbered nearly half a million.

George and Tom

The Wisconsin Medical Society has a slogan "Let George do it," and George Crownhart, the efficient full-time secretary does it

without fail. Indiana will now "Tell it to Tom," and Tom Hendricks guarantees results. Blessed be the full-time secretary! With a full-time man looking out for its interests a medical society gets something for its money. Dues may be a little higher, but the increase becomes a catalyzer that sets stagnant funds into action. Better to pay a little more and get full value for every dollar, than to pay a little less and get nothing but enrollment.

Surplus for Deficit

A full-time secretary-editor is not always an expense. When Wisconsin appointed its full-time officer two years ago it was paying \$5,000 annually for the maintenance of its journal. At the end of two years it now has a surplus of \$15,000. The secretary thus becomes a medium of economy. Only a full-time man can fully develop the possibilities of a state journal. Advertising, the only source of revenue, cannot be had for the asking; it is secured at the cost of time, effort, and persistence, which must be given with more liberality than the part-time man can afford.

Rabies

More than 200,000 dogs in the principal cities of Japan have been vaccinated against rabies. Not one of them has since taken the disease, although the malady is common among unvaccinated animals. Dr. S. Kondo is reported by Science Service to have developed a cheap and easily prepared vaccine, which promises to abolish rabies from his country.

Hibernation

Dr. George E. Johnson has reported to the American Society of Zoologists his study of hibernation in the striped ground squirrel. In its winter nest the sleeping animal was a limp ball of fur, which was motionless, felt cold, and breathed only a few times a minute. When handled, it breathed a little more rapidly. When placed in a warm room, it trembled a little and slowly awoke. A thermometer showed that during the waking process the temperature rose from a few degrees above freezing to normal. The heart

during hibernation was too faint to be heard with a stethoscope.

The Ultra-Violet Ray

Physiotherapy, which of late has made such rapid strides, is largely empirical. It is to be hoped that investigation will rationalize it, and further increase its value.

Drs. C. E. Barr and W. T. Bovic of Harvard University report their studies of the effect of the ultra-violet ray on amoebae. When these little unit cells were exposed to ultra-violet light for a quarter of a second, they seemed paralyzed; motion, however, eventually returned. When exposure was increased to a second, they were killed; while three seconds not only killed them, but disintegrated them.

Sex Ratio

Sex ratio has always been a matter of interest. Yet no scientist can tell why 105 boys are born to every 100 girls. Among pigeons there are 115 males to 100 females; among chickens the females predominate, although in smaller ratio.

Dr. F. A. E. Crew of Edinburgh University finds that ratios vary with the seasons of the year. Greyhounds bred in December produce 88 male puppies to 100 females. When they are bred in September, the ratio becomes 122 to 100. Observations with other animals show that more males are born from summer matings. The observations are interesting, but they contribute to the complexity of the problem, rather than its solution.

Child Welfare Profits

Over 163,000 defects have been corrected in New York City alone as a result of routine physical examinations among school children. The results of this work are evident among boys and girls applying for employment certificates; the percentage of defects among these children is decreasing.

Analysing Tonsillectomies

Studies have been made at Leicester, England, to determine the result of tonsillectomy and adenectomy in school children. A group

of 666 children were observed. After operation there were 45 per cent fewer cases of apparent deafness and 23 per cent fewer cases of mental retardation. There was a reduction of 32 per cent in irregular attendance.

The Opium Deadlock

The deadlock in the Opium Conference at Geneva seems deplorable. Discussion was wearying and fruitless. Nothing came of the American proposal for a central body to control the production of opium and to decrease its production 10 per cent per annum. On the face of it, the plan looks simple. But the objection is made that no one can foretell what amount of opium may be needed in the future. Wars, epidemics, and catastrophes may suddenly increase the need for the drug, and if the supply is curtailed at the source, the situation becomes irremediable.

Mine Ventilation

Good ventilation of mines brings profits, even though ventilating systems are costly. Men work better when proper attention is given to temperature, humidity, and movement of the air. With these conditions favorable the mine output increases as a result. A large mining company recently spent \$70,000 to sink a ventilating shaft and install ventilating equipment. It finds that the installation pays for itself every six months.

Fatal Accidents

In publishing its statistics for 1923 the Department of Commerce announces that one-fifth of all fatal accidents are caused by the automobile.

Only three states, Kentucky, Mississippi, and Wyoming, reported more deaths from railroad accidents than automobile accidents. Wyoming showed the highest mortality from railroad accidents—34 per 100,000 population. Wyoming also had the dark distinction of having the highest accident death rate of all states. The fatalities were 195 per 100,000 population.

Mississippi stands lowest with an accident death rate of 57 per 100,000.

THE COMMON CAUSES AND EFFECTS OF ALLERGY*

W. W. DUKE, M.D.

KANSAS CITY, MO.

I wish to express my sincere appreciation of this invitation to give a paper in so beautiful a state as Colorado. It is a rather dangerous thing to invite me to Colorado too often because every time I come I am tempted to stay. I know of nothing I had rather do than practice here.

There is no subject which seems more interesting and fascinating than allergy. It appears that through a certain peculiar inherited mechanism a rather large proportion of individuals, apparently about fifteen per cent, can become so sensitive to a foreign agent, such as pollen, dander, foods, etc., that these harmless agents come to rank in sensitive individuals with the most violent poisons known to mankind. For example, in a patient sensitive to pollen, I have known as little as 1-1000 mg. of pollen to cause serious symptoms. The toxicity of certain allergens to patients who happen to be sensitive to them may apparently be over one hundred times more intense than the most powerful poisons which can be crystallized and isolated in the chemical laboratory. It is no wonder that patients coming in daily contact with such substances are ill.

This subject, allergy, with which I wish to deal, originated primarily in Richet's laboratory. Richet and his collaborators found that animals inoculated with eel serum, and with toxin extracted from actinia, became acutely sensitive to their action so that future inoculations caused violent symptoms and death, even when given in doses which were sublethal for untreated animals. This condition of hypersensitiveness which Richet called anaphylaxis, has been elaborated in high degree through the work of many observers who have placed the subject on a practical basis which can now be applied clinically in the explanation of certain diseases. The first clinical applications were made by Wolf-Eisner in trying to explain the pathogene-

sis of hay fever and by Meltzer who suggested that pure bronchial asthma was a phenomena of anaphylaxis. At the present time we have a relatively complete story.

Individuals who inherit a certain constitution can become sensitive to one or more foreign substances. They usually become sensitive to substances which they meet with in infinitesimal quantities or which they meet with on rare occasions only. They rarely become sensitive to substances with which they come in frequent gross contact, or if they do become sensitive, apparently gain tolerance for them. The pollen of the air is an ideal agent of this type. First, it occurs for short seasons only and second, it is rarely met with in quantity. Apparently over one per cent of people are sensitive to pollen. Pollens to which people usually become sensitive are those liberated in the air by the trees, weeds, or grasses. The pollen which is the most troublesome is the one thrown out in the greatest quantity over the longest period of time. The pollen of flowering plants is too scarce, as a rule, to be a factor. Patients may not only be sensitive to pollen, but may be sensitive to other constituents of plant life occurring in the leaf, flower, trunk, or stem. A relatively large proportion of people are sensitive to orris root used in the manufacture of most of the face powders, perfumes, tooth pastes, soap, and other articles of toilet. The volatile oils and aromatic bodies of plant life are relatively common causes of allergy. As example may be mentioned the essential oils used in the manufacture of perfume, turpentine, and related substances, cedar wood oil, etc. A relatively large proportion of individuals are sensitive to certain organic bodies which are crystallizable. In this class come a great many bodies which are commonly used as drugs, such as cocaine, quinine, atropine, morphine, etc. Sensitiveness to cocaine and novocaine is a relatively common cause of dermatitis in dentists. While speaking of drugs, it is well to mention an-

*Read at the annual meeting of the Colorado State Medical Society, October 7, 8, 9, 1924.

tiseptic, such as formalin and germicides, such as insect powders, which are commonly used around the house. These are relatively common offenders in sensitive individuals.

Whereas products of plant life are possibly the commonest source of reaction, products of animal life are also relatively common. Of these the most interesting is dander, hair, and feathers. Many patients become sensitive to the dander of one particular animal, such as that of pigs, sheep, cats, dogs, mice, etc. Strange to say, sensitiveness to sheep seems relatively rare. It is possible that patients become sensitive to wool but gain tolerance to it because of frequent intimate contact with wool. Sensitiveness to duck feathers and goose feathers is a relative common cause of night asthma, symptoms being caused by contact with feathers used in the pillows and upholstery.

Dust is a relatively common cause of asthma and, strange to say, patients are frequently sensitive to one particular type of dust, such as house dust, street dust, stable dust,—in fact, some individuals are sensitive to dust in one particular house and not sensitive to dust in another house. When one bears in mind the enormous number of foreign agents which can be found in dust, it is not remarkable that we find one type of dust harmless and another the source of serious trouble. In one patient who had been afflicted with asthma for many years, we obtained a marked skin test with dust taken from her vacuum cleaner. We finally traced this to one rug. We found her trouble dated from the purchase of that rug and she was completely relieved by its removal from that house.

Some patients become sensitive to smoke of certain varieties, such as wood smoke, coal smoke, gasoline smoke, coal-oil stove smoke, and even smoke caused by the frying of grease. One patient sensitive to wood smoke was so sensitive that she had asthma in houses having an open fire place, even though the fire was not burning. She would be comfortable in steam heated houses. Apparently the traces of smoke

which would adhere to draperies was sufficient to cause illness.

Patients may become sensitive to almost any variety of food, although it is usually to a type of food which they meet with in traces and do not meet with frequently. When patients are sensitive to milk and egg they are usually sensitive to one of the smaller constituents of the same. Patients sensitive to milk are frequently not sensitive to milk itself, but to some article of the food eaten by the animal or human furnishing the milk. I have found in three patients sensitive to egg that they were unable to eat hen meat because of a small constituent of egg. They could eat the meat of a rooster without symptoms.

A certain number of individuals become sensitive to insects of a certain variety, such as mosquitos, fleas, bedbugs, chiggers, wasps, and bees. In a case of sensitiveness of this type, a bite of a certain insect may cause a reaction which varies from a severe illness to a most complete collapse. Patients are not frequently sensitive to animal parasites nor bacteria. This is possibly due to the fact that here we have intimate contact over a long period of time so that in case a patient does become sensitive he soon gains tolerance and thereafter this type of animal life becomes harmless. It is not rare, however, to find allergy complicating acute infectious diseases. This is a case of sensitiveness to substances with which the person has not previously had intimate contact.

Patients frequently have natural sensitiveness to certain sera. In such cases, the treatment with serum is likely to be dangerous. Death has been caused by as little as one drop of horse serum given intravenously and by as little as 1 c.c. of serum subcutaneously in individuals who had had no previous dose of serum. It is interesting to mention in this connection that before the administration of serum, a physician should inquire concerning personal or family history of hay fever, asthma, eczema, and hives and in case of a positive answer, should test the patient intracutaneously with 1-100 c.c. of serum. In case of a positive reaction, serum should be avoided if possible.

If the indication is urgent enough to require its use, it should be given in one drop doses at one-half hour intervals until an adequate amount has been given. If the patient does not react on the first one or two injections, the dose can be gradually and cautiously increased.

The symptoms of reaction in different individuals vary. They may be divided into orbital symptoms, such as itching of the lids and lacrimation; nasal symptoms, such as sneezing, swelling of the mucous membrane of the nose, and watery discharge from the nose; pharyngeal symptoms, such as itching of the soft palate; bronchial symptoms, such as cough, shortness of breath on exertion, or definite asthma; skin symptoms such as erythema, pruritis, hives, and eczema; neurological symptoms, such as nervousness, weakness, convulsions, and even migratory paralysis, headache, dizziness; bladder symptoms, such as frequent painful urination; gastro-intestinal symptoms, such as nausea, vomiting, abdominal pain, dyspepsia, diarrhoea; general symptoms, such as hypertension, eosinophilia, etc.

Before closing, I must mention a type of allergy in which I have become interested recently, which apparently is somewhat different from that previously mentioned in that the patient is not sensitive to a material agent but is sensitive rather to the action of some physical agent, such as light, heat, cold, and mechanical irritation, and in the case of heat sensitiveness, indirectly to the action of mental and physical exercise. One patient whom I found sensitive to light, for example, would react to blue violet rays of light of any source with an itching hive on the skin which would cover the entire area exposed. Upon several occasions when she accidentally exposed large skin areas to sunlight, there followed typical allergic shock which almost terminated fatally upon two occasions. In another case, I found marked sensitiveness to the action of cold—in fact, cold of a certain specific degree, namely, between 15 and 20 degrees centigrade. The application of a drop of cold water on the skin would give rise to a hive which would

cover the entire skin area. Upon several occasions upon which a large area of skin was exposed to cold, the patient had allergic shock which caused almost complete collapse. In a patient sensitive to heat, a general hive rash would appear, not only upon exposure to slight grades of heat of any source but even as a result of exercise which would generate one or two calories of heat. The rash could be relieved immediately by the application of cold, such as cold water or ice to the skin. At times when the patient was unusually sensitive, the exercise of taking off an overcoat, would be sufficient to bring out a rash. The mental excitement of watching an athletic contest would do the same. An interesting business deal was almost invariably interrupted by an attack of itching which would last ten minutes or more. I have found that these same physical agents produce not only hives on skin but in some individuals affect the nasal mucous membrane, bronchial mucous membrane, or the gastro-intestinal tract, giving rise to symptoms simulating hay fever, asthma, dyspepsia, etc. In one individual sensitive to cold, a nasal reaction could be brought out by rubbing a small area of skin with ice or at night even by the exposure of a bare arm to cold air. In the heat sensitive case, complete obstruction of the nose was frequently caused by the small amount of heat generated by the exercise of turning over quickly in bed. An attack of this sort could be relieved by exposing the bare arms to cold air. Patients sensitive to heat usually run subnormal temperatures and reaction is usually associated with a rise in temperature. When the temperature approaches normal, the heat sensitive cases usually stop reacting for the time being. Relief can frequently be obtained by the prevention of low temperatures by such agents as thyroid extract and nonspecific vaccine therapy. In one case which was markedly sensitive to heat and which reacted as many as twenty-five times a day, there was complete freedom from attacks during an attack of acute infectious disease, during which the temperature remained constantly high. In one patient

sensitive to cold, an attack of abdominal pain simulating gall stone colic could be brought on by the drinking of a glass of cold water and could be relieved by the ingestion of a hot drink.

It is hardly possible in a paper of this scope to take up at length the diagnosis and treatment of this condition except in the briefest way. So far as diagnosis is concerned, the family history is important. A carefully taken past history is very important. Clinical examinations are important. Skin tests give a clue, but cannot be considered a proof of clinical sensitiveness. The proof of a diagnosis depends upon gaining a clue, obtaining clinical relief by removal of the suspected substances, and reproducing symptoms during a well period by bringing the patient again in contact with the suspected substances. These three requisites must be met with before diagnosis can be considered proven.

Treatment can be carried out along several lines—first and best, by removal of the cause; second, specific treatment when this is possible and when the cause is definitely proven; third, nonspecific treatment in cases in which the cause cannot be discovered; fourth, symptomatic treatment with substances such as adrenalin and atropin as temporary expedients.

In closing, I wish to emphasize that the effects of allergy can involve almost every organ in the body and cause disorder. It may simulate many functional or organic diseases and for this reason, has to be taken into consideration by specialists in practically every line. If this is done, many errors in diagnosis and treatment can be avoided.

DISCUSSION

J. N. Hall, Denver: I am perfectly free to say at the outset that I am not fit to discuss this paper, because it goes to such length that it is beyond my depth. I have not the slightest doubt that we overlook a great many of these cases. I have known some of the instances that Dr. Duke has treated, personally, with brilliant results. I have great confidence in what he states as to the various findings which he has outlined. I think, however, that it is one of the things we shall have to be very careful about, because when such work as that gets into the hands of men without perhaps a well balanced judgment, they

will get to tangling things in such a way as not to know just where they do come out with it. I do not doubt that there will be a time when we shall find out that giant hives, as we call them, and a good many other things, will be solved. There certainly is a good deal of trouble in that line at the present, and we have not accomplished very much. I am a good deal interested in these people who have trouble with heat and cold. I will tell Dr. Duke what to do for them. I stayed in Texas for a time, and if he will send the patients who are affected by heat down where I was in Texas, they will die in the summer, and those affected by cold will die the next winter, and he will get rid of the whole bunch. I saw an interesting thing in a sleeping car bearing on this matter of allergy. One man who was an asthmatic called the porter and said, "You will have to open that window at once, or I will smother," and the porter hadn't got it more than opened until another man said, "Porter, I have tuberculosis, and if you don't shut that window I will die," and they ran that three or four times until we finally all got tired. Then a wise gentleman who knew something about allergy, I guess, stuck his head out of the berth and said, "Porter, I will tell you what to do. Open that window by the fellow that has tuberculosis until he dies and then shut it until the fellow with asthma dies, and then we will all get some sleep." I speak of this, because I do not want Dr. Duke to adopt any such radical measures as that without very careful consideration.

W. V. Mullin, Colorado Springs: As I was sitting here listening to Dr. Duke and looking at Dr. Waring, the one thing that struck me was that Duke has apparently delved more into allergy than has Waring. It leads you, as Dr. Hall says, into such depths that I think it is often a good reason for insanity.

Just to follow Dr. Duke's remarks as he mentioned them—one of the best instances, of course, are the people who have asthma and cannot take aspirin. I have in my time seen two cases that I thought were going to die from taking aspirin. I have had one case that had a severe attack of tonsillitis, and just for that reason I gave her salicin, and she took that for a day in ten grain doses every three hours without the slightest trouble. As evening came on, she ached so badly that she asked me for something stronger. Inasmuch as she had tolerated the salicin so well, I thought it would be all right to switch to aspirin. I gave her one five grain dose, and I nearly lost her. Now, what is the offender in aspirin that is not in salicin? In speaking of irritants, such as smoke, and so forth, I wonder if Dr. Duke classes those as irritants, or perhaps as true allergy. I certainly have the most wholesome respect for the reflex side of asthma. I recall one man who was formerly a member of this society, now dead, who, when he had the slightest touch of cotton in his left ear, had the most violent attack of asthma. Then if I took a cocaine bottle and sprayed his nose, I could stop it. I have seen many cases like that, but he was the most striking. One case of asthma I found sensitive to pork by the skin reactions. We took him off pork, and he avoided it very religiously and had a splendid result for two months. One day he took a car ride with his wife over to Manitou, and got walking around, and went over to the sulphur spring and took a glass of sulphur water, and in a few minutes he turned to his wife and said, "You will have to get me in somewhere because I am going to have one of my attacks of asthma." She got him into the

hotel, and he had one of his very violent attacks. Whether that was due to the inhalation of sulphur, or something that he took into his stomach, we don't know. Anyway, he came in to see me the next day to be tested for sulphur. A physician of Los Angeles told me this last spring that he felt that allergy accounted for everything in the way of asthma. He had absolutely no regard for infections of the upper respiratory tract, such as sinus disease. He felt that if the nose was filled with hyperplastic tissue, this should be removed; but that was not at all the underlying cause of the asthma. I quite agree with him, because I have had so many cases of asthma relieved by the removal of the hyperplastic tissue in the nose. I would like to have Dr. Duke express himself on that. I can appreciate the remarks about the heat and the hives, because I get them myself. I have never had asthma; I have never had hay-fever. As soon as I am exposed to heat, as in a Turkish bath or working in a warm operating room, I always have hives. Just the last question in regard to exposure to wind and cold, and injection of Meckel's ganglion, I might mention the idea that our president brought out some years ago and that is that the wearing of the skull cap covering the peripheral nerves, relieves a great many of the attacks.

W. N. Beggs, Denver: I want to say one or two words on this subject, because I have made an observation or two that are rather interesting, to say the least. Dr. Mullin brought out simply the fact that a person may be subject to allergy from a number of different things at one time. Now, some twenty to twenty-five years ago I made the statement that I believed that urticaria and so-called bronchial asthma were alike in nature, and I mentioned the fact to Dr. Greenfield Sluder, of St. Louis, a personal friend of mine, and he said that that appealed to him. But since that time I have become myself very susceptible every year to hives, until recently, and it took me a long time to find the cause of the allergic reaction. Strawberries, red raspberries—red raspberries cooked, don't do it—water cress, and a few other things. I simply want to make the one statement, which seems to be rather funny, rather peculiar, in the matter of strawberries. I observed a number of years ago that as long as the southern strawberries were in the market, those from Georgia, Texas and Arkansas, I could eat any quantity of them without any trouble at all, but when the Missouri berries came in, and then when the Colorado berries came in, I had to be very careful. That may seem funny, and yet it is not at all unreasonable, because the molecules, or whatever particular thing it is which cause this condition in the individual, may be somewhat influenced by the chemistry of the soil in which the fruit is grown. We know that strawberries from one territory have a different flavor, for example, than those from another, and the one thing which gives Colorado its supremacy in certain of its fruits, is undoubtedly due to that. You know you can take seeds from a Rocky Ford melon and plant them anywhere in the United States excepting Colorado, and you do not get the same melon. If we get that difference in the flavor, we also may get that difference in whatever element it is that produces the allergy.

W. S. Craghead, Denver: I am very much disappointed to hear Dr. Beggs roast Missouri. That happens to be the state he comes from. It seems to me I have noticed along those lines something that is extremely interesting this season. Now, I won't mention the antiseptic powder, because it

might be an injustice, but I don't believe it is an injustice. I happen to own a drug store, and this antiseptic powder is used in the drug store. Quite a few asthmatics come into the drug store and say, "You are using that powder to kill flies again." I certainly have noticed myself the developing of the symptoms of extreme acute cold when there was any unusual amount of this insect powder used to kill flies in the store. Now, if any physician wants to know the name of the powder, which is very largely used, I would be glad to do it, but I would not want to do the manufacturers an injustice; but there must be a reason for this, because I am thoroughly satisfied that it produces a respiratory trouble.

Arnold Minnig, Denver: I think we are indebted to Dr. Duke for a most comprehensive presentation of this subject. Each man who speaks on this subject adds just a little bit more, and it seems as though that thing goes on. In the paper last year before this society on bronchial asthma, I called attention to this fact, and I still would like to hope that instead of this subject becoming more complicated, we should get the thing more simplified. I want to point out again that it seems to me so many of these allergies are due to certain food sensitizations that I should like to suggest that some day in the not distant future certain organic derivatives of the amino acids may be found which, when injected, may desensitize the patient to a whole host of allergens. In the second place, I want to point out that I agree with Dr. Duke in the fact that the specialties are all concerned, and should all be urged to investigate this type of allergy. I want to mention that the tuberculosis factor is one of importance in this phenomenon. I have had several very stubborn asthmatic cases which I have put on simple tuberculosis treatment, plus tuberculin, in which the symptoms cleared.

C. E. Edson, Denver: We are very much indebted for the work of Dr. Duke, and for his bringing before us the tremendous range of symptoms and conditions due to allergy.

It is very easy in one's enthusiasm for this to ascribe everything to a common cause, to ascribe all symptoms to condition of allergy. Until it has been worked out, Dr. Duke, I am sure, will agree with me that one has to prove everything by findings; we must not forget that we must have a condition of hypersensitiveness to protein, intoxication or inoculation, perhaps in the patient's own body, making him sensitive at one time, when at another he would not be to the same does or the same protein. I think this is particularly true to conditions such as he describes as due to hypersensitiveness to heat or to cold. Persons with insufficient elimination are more sensitive to cold or to heat than would be at other times. We must remember not only the normal physiologic conditions, and rule out ordinary disturbances of that sort, before we ascribe these rather unusual, and one may say slightly irregular cases of allergy, to a true allergic cause. We must not forget also our anatomy, because an accurate knowledge of anatomy such as few of us who have been in practice thirty years possess, will sometimes explain the irregular and curious symptoms which an accurate memory of the anatomy would obviate. I cite briefly one case, a patient who for several weeks had had an increasing paroxysmal cough, brought on especially after meals, so much so that two out of every three meals of the day were lost from vomiting, due to violence of the cough. The question actually arose of whether it was a case of whooping

cough. He quieted down somewhat, and then quite instantly, with no idea of a cough in mind, discovered a little discomfort in the ear. We found a little fissure in the ear. He painted it with nitrate of silver and immediately there was a paroxysmal cough with vomiting precisely such as had been going on for several weeks. Every first year student knows of the auricular branch of Jacobson's nerve, but after thirty years of practice one sometimes forgets it. There never was a return of the cough after the healing of that fissure, until about ten years after the same paroxysmal cough returned, and remembering the case the patient was examined for the possible return of the fissure. None was found, but a small, hard, impacted comedo at the entrance to the canal was found, and the removal of that stopped the cough. I am not sure whether that was due to fissures in the meatus of the ear, but we must not forget our anatomy and our normal every-day physiology, as well as the newer pathology.

W. F. Singer, Pueblo: The question of physical causation of dermatography, I believe, is simply the initiation of the patient, due to a change in the threshold of its initiation. I do not believe that physical agents—by that I do not mean to disagree with Dr. Duke—but I am not satisfied in my own mind, however, that physical agents will cause an allergic reaction. I do believe, however, that physical agents may change the initiatory threshold of the condition. I believe that what we have in dermatography is a condition of the tissues in which there is allergic reaction going on, but requires the physical irritation to bring it into existence.

Dr. Duke (closing): Dr. Hall mentioned the complexity of the subject of allergy. This is true. Any new subject, however, is complex, because we do not know the whole story. To me, allergy has been simplified fifty per cent by a study of the reactions caused by physical agents. I think we will find, as knowledge is accumulated, that this subject is not so complex as it now appears.

In regard to smoke in allergy: I have had patients made sick, not only by the smoke of burning wood, but by the burning of certain kinds of wood. We must realize that there are many different things in smoke, and vapors, and that people may become sensitive to one constituent only, that this may be contained in smoke of certain sources. Dr. Beggs mentioned being sensitive to strawberries of a limited district. It is not unusual for a man to be sensitive to plant products coming from restricted territories and not from others.

Dr. Minnig mentioned relieving asthma with tuberculin. It would be extremely interesting to know whether the subnormal temperature of those patients was a factor. I believe patients with subnormal morning temperatures might be relieved through a change in this mechanism by tuberculin. If you can prevent subnormal temperature in asthma cases you can frequently relieve asthma. In reply to Dr. Edson's discussion about the changes in sensitiveness, which occur characteristically in people sensitive to food, I can say that sensitiveness to foods frequently occurs, especially in the case of delayed reactions. We know that the pancreatic juice changes according to the diet, and I believe that relief of sensitiveness to foods is frequently due to a change in the pancreatic juice, and consequent change in the nature and quantity of split products liberated. Food cases frequently obtain relief by leaving certain food alone for a time.

In regard to Dr. Singer's discussion of the action of physical agents: Certain people will react only to scratches. I cannot explain to my satisfaction the mechanism of cases of this sort. I can understand, however, how sensitiveness to heat or cold and light might come about. It is very easy, possibly, I should think, for a person to become hypersensitive to some new substance, liberated by the action of a physical agent such as light, heat and cold.

Coolidge on Public Health

"Public health lies at the foundation, the very foundation of all human welfare. Unless that is conserved and protected, there is very little use in any other activity for the promotion of public welfare."—Calvin A. Coolidge.

On December 31, 1923, there were 48,140 physicians listed in the Medical Register of England, about one physician to 1,000 population.

The New York City Department of Health has made definite plans to open a clinic for the treatment of whooping cough by chlorine gas at the Willard Parker Hospital.

The American Child Health Association has prepared an intensive health program, and expects during the coming school year to give health training to at least 100,000 children.

Recently a successful "Baby Week" was staged among the natives of western India.

During the World War only 1,849 American soldiers were seriously affected by chlorine gas, and of these only seven died.—Dearborn Independent.

The reopening of the medical schools this year is disclosing a remarkable diminution in the number of women who are entering on professional studies in England.

The Japan Medical World states that at present there are about 1,200 women in Japan who have qualified as physicians.

The Ministry of Health of England is broadcasting talks on health.

So far as is known, plants never acquire immunity. They succumb to a second or third or twentieth attack of a disease as readily as they do to a first.

Between 1913 and 1915 the death rate among young German adult males increased from 4.4 per thousand to 66.9.

At least thirty-four forms of eye defects are hereditary. Eight or more of them may produce blindness.

"Bayer 205," the new German remedy for African sleeping sickness, is to be given the commercial name of "Germanin."

White Plains, N. Y., has lowered its infant mortality rate from 130 in 1911 to 38 in 1923.

A child once having reached 10 years of age is in greater danger of dying ultimately from cancer than from tuberculosis.

THE DIFFERENTIAL DIAGNOSIS AND TREATMENT OF NON-TUBERCULOUS PULMONARY SUPPURATION*

Lantern Slide Demonstration

CARL A. HEDBLÖM, M.D.

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First of all I wish to express my appreciation of the honor of being asked to speak before the Colorado State Medical Society.

I have been asked to talk on non-tuberculous pulmonary suppuration. That involves the differentiation between the tuberculous and the non-tuberculous condition. I feel that it is like "carrying coals to Newcastle" for me to touch on the subject of tuberculosis, before a group of Colorado physicians, but the differentiation between the tuberculous and the non-tuberculous types of suppuration is of so great importance with respect to treatment that I trust you will bear with me in what I shall have to say. Perhaps it will serve to emphasize the fact that cases presenting the characteristic clinical picture of tuberculosis are by no means all tuberculous.

I appreciate that we are behind schedule, so in the limited time at my disposal I shall be able to bring out only a few salient points.

Non-tuberculous pulmonary suppuration as I have observed it includes essentially three groups, namely, pulmonary abscess, bronchiectasis and combined abscess and bronchiectasis. Pulmonary abscess may be solitary, multilocular, or there may be multiple discrete abscesses. Bronchiectasis may be localized or diffuse, unilateral or bilateral. The pathological anatomy of the combined lesions varies greatly. Either condition may be primary and the secondary lesion varies greatly in degree and extent of involvement.

The etiology includes a wide range of conditions, and especially in case of bronchiectasis, there remains a considerable proportion of cases in which no etiological factors could be elicited. Pneumonia, whether primary or secondary to some other infectious condition, was the precursor in 301 (45.2 per cent) of 665 cases

studied at the Mayo Clinic. One hundred forty-six (21.9 per cent) followed operations under inhalation anaesthesia; 118 (about 34 per cent) were proven cases of foreign body in a bronchus. In a few of the post operative cases the onset was characteristic of septic embolism and in some there was definite evidence of inhalation of septic material into the bronchial tract. Among 53 cases of post-tonsillectomy suppuration (the tonsillectomy having been performed elsewhere in all but two cases), the operation had been performed under general anaesthesia. In one case following tonsillectomy at the Mayo Clinic the infection was clearly blood-borne as there were multiple abscesses in other organs. In 14 cases following teeth extraction under general anaesthesia the symptoms and clinical course was similar to other post-operative cases and in each a tooth or portion of one was proven to have been in a bronchus. Probably many cases of unknown etiology dating from infancy are due to foreign body in a bronchus never recognized as such.

The characterizing symptom of all types is a chronic cough with an abundance of purulent sputum. But symptoms characteristic of pulmonary tuberculosis including fever, loss of weight, and strength, night sweat, and hemoptysis, are also present in varying combination and degree. Many such cases in my experience treated for months and sometimes for years at sanatoria for tuberculosis have gotten entirely well and have remained well following drainage of the abscess. The essential to a diagnosis of pulmonary tuberculosis in these cases is the demonstration of bacilli in the sputum.

The treatment of pulmonary suppuration to be rational and effective must necessarily vary with the pathological anatomy and with the condition of the patient. In pulmonary abscess expectant treatment, bron-

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choscopic lavage, pneumothorax collapse, drainage and lobectomy, have their advocates. Each of these methods have their indications but no one method is suitable to all cases. Expectant treatment must be employed in the incipient stage and until the abscess can be localized. It is indicated also in those cases that show a progressive improvement, but if no improvement occurs after one to two months of observation, and especially if the patient is losing ground, drainage is indicated. The only exception to this statement is in case of a centrally located abscess in which it may be very difficult to find the abscess and the risk of fatal hemorrhage from the large trunk vessels is great. In centrally located abscess the nearest exit for the pus is through a bronchus and in these cases bronchoscopic lavage and pneumothorax collapse may be of value. In peripherally situated abscess the nearest exit for the pus is through the chest wall. Pneumothorax collapse in the presence of an abscess so situated will often be ineffective owing to adhesions holding the part of the lung that should be collapsed against the chest wall. If these adhesions are broken up or if the abscess is very near the surface the abscess is prone to rupture into the pleural cavity producing an empyema which is always a serious complication. Lobectomy has so far been followed by a forbidding mortality in view of the relatively favorable results following drainage.

There remains a type of chronic abscess localized to a portion of one lobe of the lung in which there is no large abscess cavity, but the whole diseased portion of the lung is riddled with more or less discrete abscesses. In these cases extirpation is the only effective treatment. Cautery extirpation, because it can be done in stages, is in my opinion the treatment of choice, even though it involves considerable risk of secondary hemorrhage. There is also a possibility that among the small abscesses a large one may be encountered following drainage of which a cure will be achieved. I have had such a case.

All forms of treatment for bronchiectasis have yielded relatively unfavorable results. All the methods enumerated under abscess

and also extrapleural collapse have been attempted but the relatively unsuccessful results achieved is suggested by the relatively very small number of recorded cases of bronchiectasis in which any type of operation has been attempted. Most cases are of the diffuse type and the futility of expecting to achieve a cure by washing out the main bronchi in such cases seems evident from inspection of an anatomical specimen. Extrapleural collapse was tried and largely abandoned because a large proportion of the patients died, and those who survived were not materially benefited. The operation was done in one stage usually under general anaesthesia. As a result the patient died of shock or secondary complications in case of an extensive collapse of the chest wall, and the patients who survived a less severe operation were not greatly benefited, probably because a sufficient degree of collapse of the lung was not achieved.

The operation which I have performed during the last years has consisted of a complete resection of all ribs over the involved portion of the lung under combined regional and nitrous oxide oxygen or ethylene anaesthesia and in five or more stages depending on the patient's condition. The nerve trunks have been injected with alcohol at the end of the operation to insure a relatively painless convalescence, and to enable the patient to cough up the sputum without the inhibitory influence of pain. This anaesthesia persists so that the resection of the anterior and lateral segments is relatively painless.

The graded thorocoplasty so performed on unilateral bronchiectasis has been without mortality and has yielded improvement in all cases approximating an enduring symptomatic cure in the larger proportion of cases.

Obviously the collapse of one lung in case of bilateral involvement is contra-indicated. In a series of 416 cases at the Mayo Clinic 28 per cent were bilateral and it was impossible to determine whether unilateral or bilateral in 36 per cent. In case of uncertainty I have used a pneumothorax collapse of the side chiefly suspected as a therapeutic

test and have later done the extrapleural thoracoplasty only in those cases that have been relatively symptom-free when the complete pneumothorax collapse was achieved.

The recognition of cases with the combined lesion is difficult and uncertain. Often the pleura is extensively thickened, masking all lung signs and x-ray markings. The combined lesion is suspected in cases of long standing giving a history of exacerbations of fever, leukocytosis, increasingly foul sputum and prostration. In some such cases I have performed a thorocoplasty with practically complete symptomatic cure. Those who died all showed extensive involvement of the bronchi and multiple discrete abscesses. Even though the mortality must necessarily be high, thorocoplasty seems the only operation that offers anything in these cases unless they are in sufficiently good condition to warrant lobectomy.

(Slides were shown illustrating pathological anatomy, etiology, x-ray pictures and technique of operations.)

DISCUSSION

L. H. McKinnie, Colorado Springs: Dr. Hedblom stole a good portion of my discussion in his very opening remark, because I used the same expression in accepting this rather disagreeable task of discussing a paper by such a man, in that in writing to Dr. Waring I said that it seemed like "carrying coals to Newcastle" for me to attempt to discuss this paper.

I think there are a few points that Dr. Hedblom has brought up which deserve emphasis. One, that he did not emphasize, which I think is very important, is on the abscess question. He spoke of using the postural drainage, and the artificial pneumothorax in treatment of abscesses, which I think in cases should be always attempted, especially if the abscess is located some place near the root of the lung. I think this should not be carried to any great length of time, because I believe all abscesses of the lung, if left alone, will become bronchiectatic. The bronchiectatic condition is more difficult to handle than the solitary abscess. If solitary abscesses can be reached early, surgical treatment is exceedingly satisfactory and gives us marvelously quick and thorough results. A bronchiectatic condition I consider as the most difficult of the lung conditions to handle. I do not think the doctor emphasized sufficiently the pathology of the resulting bronchiectasis, because these abscesses, if they do not heal spontaneously and are not drained become very cartilaginous, and almost bony, and no operation is of any effect excepting the complete removal of the affected part. You cannot, even with the extensive thoracoplasty, which he has done, get a collapse which will do any good. I think these are the principal things I would care to emphasize, and I think they are important. Some

months ago we made a few attempts at the cauterizing lobectomy, which in our hands were not successful. These cases were primarily abscesses, were neglected and became bronchiectatic in character. One in particular had resulted from a tooth lodged in the lung. This was cauterized on several occasions. The patient bled some and died. The operation was not complete; it was not thorough, but as thorough as we could make it because the patient did not last long enough.

The type of operation that Dr. Hedblom is now doing is new to me, in the type of incision that he uses—not the extent of rib removal, but in the way he does it.

I still think it is presumptuous for me to attempt, with my very limited experience, to talk on this paper of Dr. Hedblom, for which I thank you.

TELL IT TO TOM

In the December issue of the Journal of the Indiana State Medical Society, Thomas A. Hendricks, the new full-time secretary, introduces himself to the readers:

If you have a health message for the Hoosier public, a good health story, or know of an incident which will make good reading matter or news notes, write or tell it to Tom, and he will do his best to help you get it in publication form.

If you desire medical speakers for the Rotary, Kiwanis, Lions, Optimists, parent-teacher associations, literary clubs, or lay organizations of any kind, and desire help, call Tom.

If you need help in securing essayists or in making up a program of meetings of medical societies, call on Tom.

If you come to Indianapolis, drop into the office, 1004 Hume Mansur Building, and see Tom. Check your luggage in Tom's office, make the office your headquarters, and a meeting place to see your friends.

If you want a game of golf, while in the city, make your wants known to Tom and he will fix you up. If you want theater tickets in Indianapolis, wire, telephone or write your wants to Tom. He will do his best to get you good seats if any can be rounded up.

In fact, no matter what you want, tell it to Tom and he will do his best to get it for you.

The program is extensive and all of it can not be given in detail, but it has for its object real service to the medical profession and the individual members thereof.

If you have any suggestions, give them to Tom. He has been elected and will be paid for carrying out such programs as briefly outlined. He is the rallying point for all Association activities, so Tell it to Tom.

HEART FACTS

One industrial worker in every fifty has been found to have a serious heart defect.

One out of every fifty applicants for life insurance is rejected because of a serious heart defect.

Four out of every 100 men examined for military service were disqualified on account of heart defects.

In the schools of New York City there are 20,000 children with evidences of cardiac disorders.

In the United States there are over 2,000,000 persons suffering from serious heart disease.

Heart disease is the cause of more deaths than tuberculosis or cancer.—Association for Prevention and Relief of Heart Disease.

LOCAL ANESTHESIA*

G. E. RICE, M.D.

PUEBLO, COLORADO

Dorland defines local anesthesia as a loss of the feeling or sensation that is confined to one limited part of the surface, especially tactile sensation. This definition is a good one for general use but needs slight alteration when the term is used surgically and novocain or its like used for its induction. Here we should stress the point that loss of sensation refers especially to the sense of pain, since the loss of tactile sensation does not follow, particularly in nerve block anesthesia.

Types of local anesthesia vary from the blocking of the spinal cord to local infiltration wherein the nerve terminals only come in contact with the anesthetic agent. Spinal or intra-spinal anesthesia is the ideal anesthesia were it not for the question of its safety. It gives perfect relaxation, absolute anesthesia and covers large regions. It is easy to administer and takes a minimum dose of the anesthetic agent. It acts quickly. Its safety is questionable even in the hands of the most expert. There is practically always a startling drop in the blood pressure with it and quite often alarming if not fatal collapse. With some agents there is also the danger of paralysis of the respiratory organs in the cases where ascension of the anesthetic fluid takes place by either posture or the difference in specific gravity of the agent used and that of the spinal fluid. These dangers are ever present in the minds of the surgeons using this mode of anesthesia as shown by the fact that they keep handy means of resuscitation at all times. Most of the men using spinal anesthesia have had fatalities that have cured them, and even the leading exponents of this method will frankly say that they still get severe frights from its use. Besides the question of safety the only other objection to this form of anesthesia is the short length of time it can be relied upon. With average doses of the usual anesthetic agents used in this work, absolute anesthesia can only be

depended upon from thirty to fifty minutes, which is hardly sufficient for certain types of difficult operations.

The nerve trunks may be anesthetized as they make their exit from the vertebra and may be referred to as para-vertebral block. This type is painful to administer in certain regions of the spine, and quite difficult unless one has considerable experience. It is safe when administered correctly, and gives satisfactory anesthesia. The most practical application of this form is seen in the trans-sacral nerve block wherein the sacral nerve trunks are injected through the sacral foramina and the sacral canal and its contents through the sacral hiatus. A successful injection of this type gives anesthesia of all the pelvic organs and perineum. It is a safe and efficient anesthesia for surgery of the bladder and other organs of the pelvis when combined with supra-pubic field block and with itself alone for surgery of the rectum and perineum. The only danger connected with this type is not a danger to life, but to convalescence; namely, decubitus over the anesthetized sacrum from pressure, which can be avoided by the use of the rubber air cushion or ring until the anesthesia has worn off.

Injection of the anesthetic fluid into a plexus gives us the term of plexus block. Here we get a maximum amount of anesthesia from a minimum amount of the agent. Blocking of the cervical plexus gives very satisfactory anesthesia of the anterior portion of the neck for its various phases of surgery. Likewise in surgery of the arm can we depend upon the brachial plexus block which is easy to administer and gives anesthesia lasting from two to two and one-half hours. The splanchnic plexus can be injected for upper abdominal work either before or preferably after the abdominal cavity is opened, the latter method being safer and in most cases more efficient.

The larger nerve trunks can be injected at points of election and give dependable anesthesia throughout its distribution. This type calls for a minimum amount of the

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agent, and very little trauma in administering.

Field block is the term used when a region is surrounded by a zone of the anesthetic fluid, bathing the nerves afferent to the part. The operative field is thus void of the edema that goes with local infiltration, as in all types mentioned so far in this discourse. These types are therefore to be preferred in cases where there is malignancy or inflammatory tissue in the operative field. They are also to be preferred in cases where obscuration of the anatomy is an objection and where considerable retraction of the wound sides is desired.

The simplest form of local anesthesia is infiltration of the operative field. This form has the advantage of being easy, safe, and, provided adrenalin be used in the anesthetic fluid, gives quite effective hemostasis. In certain parts of the body it has the advantage of making dissection easier, the various fascial and muscle planes having been ballooned out by the edema produced by the injected fluid. This may be a disadvantage in other fields. Other forms should be used in dealing with malignant conditions and inflammatory processes. If it has any other disadvantage it is the possibility that it might delay healing, as claimed by certain writers. It is hard to believe that it does delay healing any longer than the local effects of the adrenalin last with the corresponding edema that goes with it. In fact we can advance reasons why it should shorten the healing time, namely, less trauma is permitted under local anesthesia than under general, and it is a well known fact that the less the tissues are traumatized the more quickly will they heal. It is reasonable to believe that the fact that the tissues are sewn in a state of edema that will favorably compare with the edema that is soon to follow from the trauma, makes for better fitting sutures and thus avoidance of strangulation and cutting of the later too tight sutures. In a large number of cases done under the above mentioned types of local anesthesia, I have never seen any of the so-called delayed healing, and in certain cases have marvelled at the rapidity with which they have healed.

The choice of solution is a simple one today because of the absolute satisfaction of novocain or procain when used in connection with adrenalin. The solutions can be made in one-half to one per cent and serve all the various types, using the weaker solution for local infiltration and field block, and the one per cent solution in the various forms of nerve block. Adrenalin added in a proportion of one drop to every ten c.c. of the solution gives splendid results. The adrenalin can be depended upon to prevent too rapid absorption of self and the novocain solution, thus preventing a flood of these two toxic agents gaining admission into the general circulation. It likewise causes the local action to be maintained for a much longer time by its constricting effect on the local vascular system. Both adrenalin and novocain are toxic, yet doses of thirty drops of the former and as much as 500 c.c. of the one-half per cent solution of the latter have given no ill effects from repeated administrations in various persons for various operative procedures. The solution should be as nearly isotonic as possible and this is approximately accomplished by making the solution in one-half normal salt solution, which by the addition of the novocain powder is practically a normal salt solution. Thus is osmosis discouraged in both directions. The adrenalin can also be depended upon to give efficient hemostasis and especially is this pleasing to the surgeon in laminectomies and surgery of the neck. Other products on the market may be just as satisfactory as novocain but my experience is limited to it, and I am therefore unable to discourse on the virtues and lack of virtue of the other preparations.

The chief indications for local anesthesia are the contra-indications for general anesthesia, namely certain cardiac, renal and pulmonary conditions. Most surgeons also prefer local to general in diabetes and the very debilitated, showing that they consider bad risk cases better done under local anesthesia. If local anesthesia be safer for bad risk cases, why is it not also safer for the good risks? Then we can say that local anesthesia is indicated in any operation that can be done satisfactorily to both the sur-

geon and the patient under it. Local anesthesia is not only indicated but actually a necessity in certain types of operations where the co-operation of the patient is necessary to the success of the operation, namely laryngectomies and certain neurological and orthopedic procedures. It is also indicated in cases where the post-anesthetic behavior is a factor and the usual thrashing, vomiting and fighting reviving gyrations would be a menace to the success of the operation.

About the only contra-indications to local anesthesia are certain psychic elements and a type of operation that cannot be done satisfactorily to both the patient and the surgeon. This is a large field and here we are grateful to those who gave us general anesthesia. The purpose of this paper is not to condemn general anesthesia, or malign it in any form when used and not abused. It has a big place in surgery despite its risks and faults. Its mortality is low by statistics, but might it not be possible that a good many post-operative deaths are credited to just plain complications when the real culprit is the general anesthetic, which has by this time closed its record to that case and is now holding some other patient on that narrow margin between surgical anesthesia and collapse. Let us consider another side of the question, which will be more easily visualized by those who have done work under both types of anesthesia. It is well known that local anesthesia will not permit the rough handling of tissues that general anesthesia will. This fact should bear out the evidence that embolism and thrombosis are less common under local anesthesia. We have all observed the fact that operations can be done under gas or less gas when combined with local anesthesia that could not be done under gas alone. This might be interpreted to read that the brain centers are severely traumatized under general anesthesia unless the pain impulses are blocked in their progress to the centers. Crile has preached this for years, and in those hyper-sensitive goitre cases has proved the worth of blocking the pain impulses even though the patient be unconscious.

Preparation of the patient for an opera-

tion under local anesthesia plays an important part in the success of the operation. The chief aim of the preparation should be to put the patients in a proper frame of mind for the performance. This is best done by preliminary narcosis with morphine or some of its relatives. This will also make the pain of the injection although slight, more easily borne. They should be spared the sight of malicious looking instruments and other sights that would tend to disturb the lay mind. They should be warned that the sense of touch will not be lost to them, else they might infer that this sense remaining intact that the other sensations will likewise be felt.

Surgical technique is a very important factor in making local anesthesia a success, and the surgeon who is unwilling to modify his technique has no right to try to operate under it. Fortunately the modifications that are necessary to make this form a success are good ones and can well be remembered in working under all forms of anesthesia; i. e., gentleness in the handling of the tissues, gentle retraction, sharp dissection and no tugging or tearing. Postural changes can be relied upon for better exposure in many cases rather than forced retraction. The comfort of the patient should ever be borne in mind since there is no unconsciousness to the strained position of the back, legs or what not, that we encounter under general anesthesia but do not hear about until the anesthesia has worn off. There is no "ether back" under local anesthesia, rarely any ulnar palsies and certainly no hot water bag burns. It is in the abdomen that proper surgical technique means most unless plexus block precedes the procedures. Blocking of the splanchnic or lumbo-sacral plexuses provides for anesthesia for the entire abdominal viscera. Without this aid most of the intra-abdominal operations can be performed provided smooth wet gloves be used, traction only in a gentle manner be used and postural changes resorted to for adequate exposure. If possible, the patient's mind should be diverted from the thought of the operative procedure and can be done under the term of vocal anesthesia. If the patient winces in the course of the operation, remember

what you would like done were you the patient and reinforce the anesthesia.

To recapitulate, allow me to name the advantages of local anesthesia briefly:

1. Perfect safety of all forms except spinal.

2. Less post-operative nausea and vomiting.

3. Ability to eat, drink and smoke immediately after operation in most cases.

4. No straining as in the post-ether stage of excitement.

5. No loss of consciousness or inherent dread of the same, especially in those who have had ether and would rather die than take it again.

6. No danger of burns, bruises or strains from mal-position, because they can advise you of such.

7. Makes operations possible on patients who cannot take a general anesthetic.

8. A panacea in cases where the risk of the operation is less than the risk of taking a general anesthetic.

9. An absolute necessity in cases where the co-operation of the patient is essential to the success of the operation.

10. Reduced mortality in certain operative procedures due to unknown factors in cases where general anesthesia has been used.

11. Absence of post-operative shock in successful cases.

12. Shortens the length of general anesthesia in cases that require combined anesthesia.

The disadvantages can be summed up more easily:

1. Certain instances where the anesthesia cannot be made satisfactory to both the patient and surgeon. This field narrows with the increase in skill and technique of the operator in the administration of and operating under local anesthesia.

2. Certain psychic elements that demand that blessed unconsciousness for the benefit of both the patient and operator.

3. Cases that demand a general abdominal exploration of a traumatic nature.

4. The slight pain produced by its induction.

DISCUSSION

L. E. Likes, Lamar: I have enjoyed Dr. Rice's splendid paper very much. I agree with it so thoroughly that it would be difficult to offer any adverse criticism. It is a subject I have been interested in for twelve years. I have been using local anesthesia in abdominal operations with growing enthusiasm. A few years ago while attending the surgical clinics at Rochester I noticed they were not using regional anesthesia very much. A few weeks ago I was surprised to see how extensively it was being employed.

Dr. William J. Mayo in his forward to Labah's new book makes this expression, "I do not look forward to the day when regional anesthesia will entirely replace general anesthesia, but it will certainly hold a very high position in surgical practice." This seems to be the growing opinion of a great many surgeons in this country, and especially so in Europe. Those of you who are familiar with the surgical clinics abroad, and especially in Vienna, will realize how extensively it is being employed. Dr. Rice has discussed the various methods, and I do not believe it would be possible to duplicate these results with any form of general anesthesia. I have employed field block, and nerve block, but the greater part of any work has been done under infiltration technique. Attention to detail must be observed. A preliminary narcotic is essential to success. The patient's senses should be sufficiently numb so that he will not worry. Before the war I was using one to two per cent strength, but after the war was declared, owing to the limited supply, I cut down to one-quarter per cent. In some direct nerve block I use one per cent. A little more time is necessary. The operating table should be well padded so that the patient does not complain of the so-called ether back. A sterile isotonic solution should be employed, novocain being the solution I have always used. I have never seen toxicity in very large quantity. I have never seen an idiosyncrasy toward the drug. I have used three drops of adrenalin to the ounce. In doing abdominal work under infiltration technique, one must bear in mind that the parietal peritoneum is quite sensitive, and careful infiltration must be observed. In doing stomach work for resection, splanchnic anesthesia is eminently satisfactory, and it is very easy to administer after you have opened the abdomen. If one does not have the time to do his prostate work under local anesthesia, wouldn't it be better to turn these cases over to one reasonably skilled who could give the patient the advantage of local anesthesia?

O. S. Fowler, Denver: It certainly gives me pleasure to listen to a paper on local anesthesia. As a great many of you know, I have been talking local anesthesia since 1907 in this state. And we have had since that time a number of men who have read papers before this Society on the same subject. It is a subject that is extremely important if you consider the welfare of your patients, and not your own convenience. A surgeon that is not equipped to give to his patients the safest method that is known today, should not be doing surgery. If local anesthesia has advantage in a certain case, that case should have local anesthesia, and not be subjected to general anesthesia. None of us ever did condemn general anesthesia in cases that require it, but those cases that are not fitted for it should have the safest method for that particular individual. As to the healing, I am convinced that wounds heal quicker under local anesthesia than they do under general. This

is due, I think, to two things, one of which Dr. Rice mentioned, that we should handle the tissues more carefully, and that there is less trauma. The other is, I think, due to the hyperemia which the infiltration causes. I have never seen sloughing in but one case, and in that case I believe it was due to general wound infection that took place, rather than to the local anesthetic. It has been claimed pneumonia follows local anesthesia as often as it does general: that has not been my experience in some 500 major operations. I have had only one case of pneumonia, and that was ten days after the operation. I have had only one case of bronchitis, and that in a man weighing 260 pounds following a hernia operation. I feel we should give the patient the advantage of this method. Of the several methods used in producing anesthesia, I have stuck to only one. I depend upon my opinion of the others from the results of men more skilled in those particular procedures than I. The method I have used and follow at this time is infiltration anesthesia. I have not used spinal anesthesia except in three cases, and those cases all died within twenty-four hours, and that was enough for me. Those were administered by Dr. Parsons so my mortality with spinal anesthesia was one hundred per cent. Dr. Freeman of the Massachusetts General Hospital, reported 500 cases of spinal anesthesia, and had so many deaths, I am told, that he practically gave up the method. As to the nerve block, I do

not use it for the reason that I have sufficiently good results in my infiltration in peritoneal work and in pelvic work in general, I avoid the injection of nerves at their exits from the spinal canal, for the reason that if you get an infection you will get an infiltration and a fibrous tissue formation around that nerve that is going to give you a severe neuralgia after a time. I do inject the nerve trunks as I expose them. In doing a kidney operation, I inject directly into the nerve. If I expose the same nerve in a hernia or an appendix operation, I inject into the nerve enough to cause a little swelling out. I have always used, and I think I always will use, a very weak solution, one-fourth or one per cent. I have never used strong solutions, and do not recommend them at all. I see no advantage to them. The infiltration method can be used for any operation. I believe I have done every operation in general surgery at least once. Hernia operations I have done nearly three hundred times. Hysterectomies can be done: resection of the stomach can be done. I would be extremely afraid of the splanchnic injection. If it is done from the inside, it is reasonably safe, but I do not want anybody poking around my stomach from the back with a seven-inch needle, and I don't want anything put in my spinal canal unless it is absolutely necessary, when there is any method in the world that can be used that will accomplish the same result, and is reasonably safe.

INTRACRANIAL HEMORRHAGE OF THE NEW BORN, WITH CASE REPORTS*

J. W. AMESSE, M.D.

DENVER, COLORADO

The progress of the associated medical sciences during the past few decades has been signalized everywhere with a notable reduction in the sick rate and the death rate. This has been but a natural sequence, following the intensive application of the principles of preventive medicine, and has affected the welfare of countless millions in all stages of life.

In what may be called the realm of the newborn, however, our accomplishments have been least, where from every consideration of immaturity and helplessness, they should have been greatest. The astonishing diminution in the infant death rate has been achieved through measures directed chiefly to the amelioration of conditions challenging the health or life of the baby after the first month of life rather than at the threshold. In many places where the mortality has reached the extraordinary figures of 30 to 40 per 1,000, it would appear that

it has already approached an irreducible minimum until the field of neo-natal life has been more effectively studied. As a matter of fact, the death rate at this critical period of life has not been materially reduced during the past twenty years. Natal and pre-natal causes of death amounted to 40.3 per cent of the total infant mortality of Massachusetts for the year 1920, while, for the initial month, 45.3 per cent of all babies dying during the first year were lost. There was no decrease in the death rate during the first month of life, throughout the United States, for the decade, 1910 to 1920, although marvelous reductions were made in the age periods of 3 to 5 months and 6 to 8 months. Here the improvement was chiefly due to the elimination of gastro-intestinal diseases and the contagions of infancy.

Approximately one-half of the babies dying in the first year of life are lost in the first month. In addition, as Abt brings out, as many babies are born dead as die during

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the first month (Report of the Metropolitan Life Insurance Co.). These facts lead Sir George Newman to conclude that "it cannot be too distinctly recognized that a high infant mortality rate almost necessarily denotes a prevalence of those causes and conditions which in the long run determine a degeneration of race and further, that a high death rate of infants is an indication of evil conditions in the homes of the people, which are, after all, the vitals of the nation." Not only has the useless sacrifice of valuable lives continued but the wastage has been augmented by the neglect of conditions leading to sub-standard minds and bodies later on. So obvious has this become that the accredited agent of the American College of Surgeons, following an official inspection of more than 600 hospitals in Canada and our Western States, reported as recently as August, 1924, that the one outstanding defect in these institutions was the lack of facilities for the care of the newborn. Prenatal and post-natal clinics are almost unheard of, and the intimate co-operation which should everywhere obtain between the obstetrician and the pediatricist is unusual. Certainly no one conversant with these conditions will deny that they constitute an indictment against the medical profession. That the process of birth is attended with immediate and remote hazards for the infant has of course been recognized always. It is only in recent years, however, that a proper appreciation of those dangers has led a group of observers here and there, throughout Europe and America, to an intensive study of the etiological factors concerned and to comprehensive measures of relief.

Among the complications most commonly threatening the existence of the newborn infant, intracranial hemorrhage stands out as the most insistent and decisive.

Occurrence

In large maternities it is now generally conceded that fully one-half of the still births and of deaths during the first week of life are due to cerebral hemorrhage.¹

Warwick² reports from the pediatric service of the Hospital, University of Minnesota, 1916-19, that in thirty-six routine

autopsies on still borns or those dying during the first few days after birth, there were eighteen, or fifty per cent, that showed definite hemorrhages in the dura, over the brain or in the ventricles. In eight of these cases gross hemorrhages were also present in other organs.

That intracranial hemorrhage may occur before birth is shown by the report of Gibbs, who described a case born with contractures of one arm and leg and an old blood clot above the lateral ventricle. Osler, in his volume on "Cerebral Palsies of Children," appearing in 1889, while discussing the case of a fetus of seven months showing a gross hemorrhage of the brain, writes: "Facts have gradually accumulated to show that hemorrhage, usually meningeal, is a very frequent condition in children dying shortly after birth of asphyxia or convulsions, and as the birth palsies almost invariably have this history, it seems reasonable to conclude that in cases which recover and which subsequently present signs of motor disturbance, a similar, though less intense, lesion has existed."

Holland found, in 167 cases, tears of the tentorium in forty-eight per cent, all of these, except six, accompanied by subdural hemorrhage.

Cameron and Osman³ declare that the investigations of obstetricians and orthopedists clearly show that a considerable percentage of diplegias and paraplegias found in late childhood are due to hemorrhage of the brain at birth.

Little, in 1861, was doubtless the first to emphasize the importance of these lesions in later life, but the direct connection between cerebral hemorrhage and the so-called Little's disease was first demonstrated in autopsies of ten infants by Sarah McNutt, in 1885. Gowers, accepting her conclusions, added that it was the most important medical contribution ever received from a woman physician.

Etiology

While authorities are not in accord as to the relative values of the factors concerned in the origin of cerebral hemorrhage at or before birth, all observers agree that one of the chief causes is (a) Trauma. This

may readily occur through the almost inevitable moulding or overlapping of the cranial bones during their passage through the birth canal, particularly in hard, tedious and prolonged labors. The proper use of forceps apparently does not increase the danger of hemorrhage. If the damage is extreme, not only an external, but an internal, cephalhematoma may be produced through fracture of the inner table, requiring elevation or some other decompressive procedure. Most of these major accidents are promptly fatal, but it is easy to conceive moderate hemorrhages into the silent areas of the brain with subsequent absorption and entire freedom from the characteristic symptomatology of birth apoplexy.

Dystocia, however, need not be a factor in all cases of meningeal hemorrhage. It has been repeatedly shown that rupture of the cerebral veins may follow the easiest delivery, that it is frequent in precipitate labor, and particularly in premature births. Violent hemorrhages have also been noted after the injudicious administration of pituitary extract. Not infrequently the heroic methods employed in resuscitating a case of asphyxia neonatorum results in severe laceration of the cerebral vessels. Another source of this grave complication of labor is (b)

Asphyxia

Munro and Eustis,⁴ with others, believe this group of cases will constitute the largest in any series studied. It may appear intra-uterine or intra-partum, and may follow pressure on the cord, a dry labor, prematurity or delayed delivery from whatever cause. The writers mentioned advance the following explanation: "asphyxia raises the cerebral venous pressure and produces venous congestion. This rise in pressure decreases the absorption of the cerebrospinal fluid and, as the secretion is still going on, causes a rise of intracranial pressure. This in time produces more venous congestion and a vicious circle is begun. At some point in the circle the venous congestion becomes sufficiently great to rupture one or more cerebral veins. This may occur in the meninges, or in the substance of the brain, or in both. The primary cause

is the asphyxia." A third factor in the etiology of this disease is (c) Hemorrhage of the newborn, a condition frequently described as "status hemorrhagicus." Pearce⁵ has shown that there frequently exists in the Newborn a tendency to spontaneous and prolonged hemorrhage, affecting one or more organs. This propensity to bleed freely has been ascribed to sepsis, which has been practically eliminated in modern institutions; to lues, which, contrary to popular belief, is rarely concerned; to gastric or duodenal ulcer, where melena neonatorum is the chief symptom; to trauma and asphyxia, discussed above, and finally to this peculiar blood dyscrasia, the source of which has not been satisfactorily explained.

To determine the integrity of the blood, Rodda⁶ has suggested that the coagulation time and the so-called "bleeding time" be taken in all newborns. He has demonstrated that both of these phenomena are gradually prolonged in normal babies from birth to the fourth day, usually returning to proper limits by the fifth or sixth day. In hemorrhage of the newborn, however, which commonly intervenes between the second and the fifth day of life, both the clotting time and the bleeding time are very much extended, in some of Rodda's cases, the former reaching ninety minutes and the latter several hours. The coagulation time in health ranges from five to nine minutes with an average of seven minutes, while the bleeding time of normal infants ranges from two to five minutes, with an average of three and one-half.

Dukes' method of determining the bleeding time is recommended. The heel is cleaned with alcohol or ether, a punctured wound about $\frac{1}{2}$ cm. deep is made with a sterile lancet and the blood removed with a blotting paper as fast as it collects. This is continued until the wound ceases to bleed.

Rodda has developed a coagulation test which may be carried on coincidentally, thus requiring but one puncture. He uses a watch crystal one and one-half inches in diameter to receive the drop of blood, into which is placed a No. 6 shot. The crystal

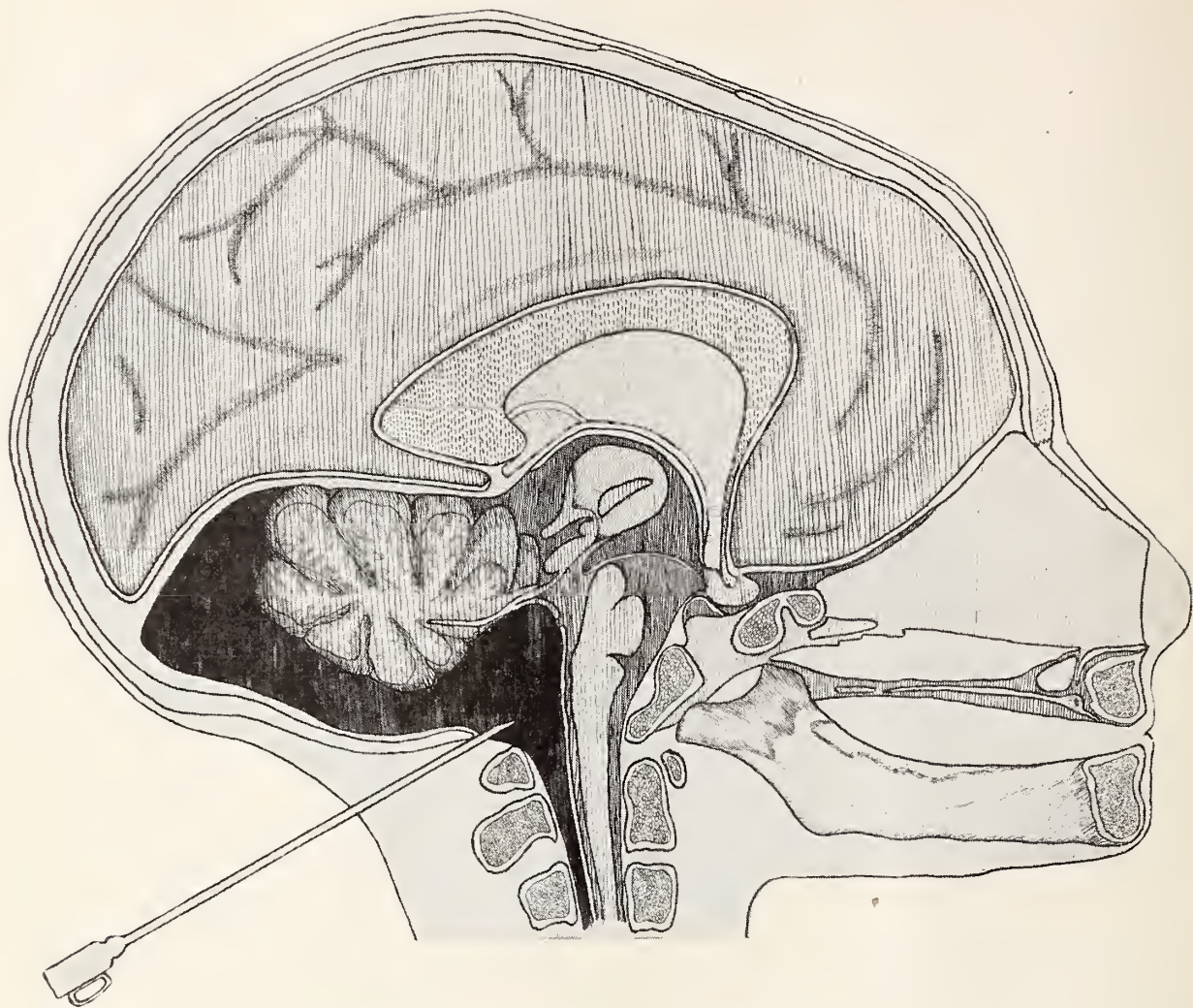


Diagram Illustrating Method of Cistern Puncture

is then covered with another of equal size and these are tilted about every thirty seconds until the shot is enmeshed in the clot and ceases to roll.

The reliability and safety of these simple methods will appeal to the obstetrician, and must assuredly in time become a routine in all modern hospitals. As soon as abnormal clotting and bleeding times are determined, suitable prophylactic measures can be instituted. These will be taken up later on.

Histo-pathology

A proper interpretation of post-mortem findings in cases of intracranial hemorrhage can scarcely be made unless one bears constantly in mind the variation in the cerebral anatomy of the newborn. Munro and Eustis have made an important contribution to this study. They have stressed the fragility of the cerebral veins, especially in the frontal and parietal regions, and the fact that the diploe does not appear until

the second year. The investigations of Browning are referred to in connection with the development of the pacchionian bodies, which undoubtedly anchor the delicate cerebral vessels in the adult, yet are absent at birth and probably not complete until after the twentieth year. "The middle meningeal artery usually runs straight up the squamo-sphenoidal suture, instead of backward, and divides into three branches instead of two. The rolandic area lies adjacent to and immediately posterior to the coronal suture and runs parallel with it. The fontanels are covered with two main layers only, the skin and superficial fascia constituting one, and the membranous interosseous layer the other." With regard to the cerebrospinal fluid in newborn infants, Munro and Eustis confirm the work of Frazier, Dandy and others who have demonstrated that this secretion originates in the choroid plexus of the ventricles, is

distributed to the entire sub-arachnoid space, spinal and cerebral, and is absorbed into the cerebral venous sinuses at a pressure equal to that in the sinuses. "As has been previously noted, this absorption, in adults, takes place, at least in part, by way of the paechionian bodies. As these are absent at birth, it is fair to assume that the possible avenues of escape for the cerebrospinal fluid from the sub-arachnoid space into the cerebral venous circulation are considerably diminished. This absorption in adults takes place at a normal pressure of 8 to 10 mm. of mercury. In newborns this pressure varies from 5 to 8 mm. A rise in venous pressure will cause an immediate and compensatory rise in the pressure of the cerebrospinal fluid, due to a decrease in the amount of this fluid absorbed into the venous circulation. This results in an actual increase of fluid in the sub-arachnoid space and in the ventricles." Munro has made clear in a previous paper that this increased intracranial pressure is the basic factor in the symptomatology of brain injuries of adults, and agrees that a similar train of events occurs in the newborn.

Post-mortem inspection reveals that the blood poured out from whatever lesion does not clot as readily as in a tube. Fluid blood may be found days after the initial hemorrhage, a fortunate circumstance indeed, in the light of modern measures for relief. According to Kundrat, the ruptured vessels are usually found under the arachnoid and in the tissues of the pia. Seitz classifies the hemorrhages into four groups: (1) supratentorial, (2) infratentorial, (3) combined, (4) lateral ventricle. "In the first group there is usually found a rupture of the veins emptying into the superior longitudinal sinus, the blood flowing over the cerebrum. In the infratentorial type, the bleeding is from the region of the transverse sinus or the margin of the tentorium and flows over the cerebellum, around the cerebellar peduncles and the medulla and even into the spinal canal. In the fourth type, the blood enters the lateral ventricle from the region of the straight sinus, the inferior longitudinal sinus and the veins of Galen." (Abt). Hemorrhages

then may be found in any locality, but are probably more common posteriorly and at the base than over the convexity.

Symptomatology

In discussing the diagnostic features of intracranial hemorrhage, Sharp and Mac-laure⁷ pertinently remark that the "sign-less" ones are the most dangerous, inasmuch as the effects of these accidents are not found until childhood is well advanced. In the great majority of cases, however, the symptoms appear promptly and, while often protean in type, seem to reflect, particularly, damage to the respiratory center, to the vagus and to the vaso-motor system. The picture which usually presents is that of an infant in the first week of life, apathetic and disinclined to nurse. It may be cyanosed or exhibit an astonishing pallor. Convulsions are common and opisthotonus not infrequent. There is a feeble cry, often distinctly cephalic; the respirations are superficial and rapid, the temperature may vary from subnormal to 104 degrees or 105 degrees F., the pulse is usually slow, but strong and full. There may be tension or bulging of the fontanel. Jaundice is not important, nor, when present, is it often associated with a prolonged coagulation time. Perhaps the outstanding symptoms in any case are stupor and convulsions, although the site of the hemorrhage will naturally influence the progress of the disease.

Diagnosis

In hemorrhage of traumatic origin the bleeding and clotting time will be found normal. There may be a history of difficult labor or precipitate labor or premature birth, with evidences of cranial injury. If the fontanel is bulging and the baby cries a great deal, we should suspect supra-tentorial hemorrhage, if the infant is cyanosed and listless, the hemorrhage is probably infra-tentorial.

In all suspicious cases, the mercurial manometer should be used to determine the pressure of the spinal fluid. Sharpe and Mac-laure place the normal cerebrospinal pressure at 4 to 8 mm., others have found it somewhat lower, but in no instance should it exceed 10 mm. A pressure of 18 mm. or

over may call for immediate operative interference. Authorities agree that the mere localization of the hemorrhage is subordinate to the estimation of the intracranial pressure. Diagnosis is incomplete also if, in these questionable cases, lumbar puncture is omitted. The ease and safety of this procedure must commend it to every practitioner. If freely flowing blood is withdrawn or blood mixed with spinal fluid, we may assume that there is free blood in the canal and thus be guided intelligently in our methods of relief.

A further aid in diagnosis is the determination of the bleeding and clotting times, which furnishes immediate evidence in hemorrhage of the newborn, as shown in a previous paragraph.

Treatment

Cerebral hemorrhage being responsible for the death of approximately fifty per cent of infants still born or dying shortly after birth, its early recognition is as imperative as is the prompt institution of appropriate treatment. The management of these cases naturally resolves itself into (a) prophylaxis.

The notification of pregnancy, the development of obstetric clinics and pre-natal clinics in our large centers of population would unquestionably result in a greatly diminished mortality at the threshold of life. For the consummation of this ideal we must look to our colleagues, the obstetricians, whose tremendous responsibilities are fully appreciated. There must be, as time goes on, more and better facilities for teaching our students the art of midwifery and a closer familiarity with its many problems.

Prevention, in cases of hemorrhagic diathesis, will also be assured by the adoption everywhere of routine examination for coagulation and bleeding time at birth. If these periods are prolonged, hemorrhage, intracranial or otherwise, may very effectively be forestalled by the subcutaneous injection of a few c.c. of whole blood, repeated, if necessary at intervals of six or eight hours for a day or two. No grouping is necessary in this simple procedure.

(b) Curative Measures. In traumatic

cases or in those where asphyxia predominates the paramount factor is the reduction of intracranial pressure. This is best accomplished by lumbar puncture which may be repeated until the pressure is reduced to normal limits. Sharpe⁸ asserts that if the spinal pressure exceeds 15 mm. lumbar puncture alone is not sufficient. He advises sub-temporal decompression, double if the condition is grave, and drainage.

Ventricular punctures have not proven of value, but a method of relief has recently been advocated by Brady¹ and others wherein the cisterna magna is invaded instead of the lumbar portion of the cord. The baby is placed in the lateral position, as for lumbar puncture, an 18-gauge needle is inserted just above the spine of the axis and forced upward and forward in the line of the external auditory meatus until the dura is pierced. When clots or adhesions have blocked the passage of fluid into the spinal canal, this expedient furnishes the most prompt and the most practical route to relieve sub-tentorial hemorrhage (Ayer). We should remember that the removal of even small quantities of blood favors absorption of what remains through the leveling of pressure. If the loss of blood has been excessive, either through gross laceration of the meninges or from unforeseen hemorrhages of the mucous membranes, transfusion, either by way of the vein or the peritoneum, must be considered, the amount not to exceed one-sixtieth of the body weight. In addition to these major agents of relief, we may employ with advantage the ice cap and, to secure physiological rest, small quantities of chloral should be administered.

Case Reports

From a series of cases the three following are reported as illustrative of the conditions encountered, and also of the relief afforded by the simple expedient of lumbar puncture:

Case I. A moderately difficult labor, the mother a primipara aged 27; the infant was born asphyxiated and only a feeble cry could be elicited after partial resuscitation. The baby was unable to nurse and could swallow only with great difficulty.

Twelve hours after birth twitching of the right arm and hand was noted, this being soon followed by general and unusually severe convulsions. The skin was markedly cyanosed, the respirations feeble and irregular, the pulse full and strong.

Lumbar puncture was performed as a last resort, the procedure, at that time, being somewhat unusual. About 20 c.c. of liquid blood was released under relatively great pressure. The fontanel, which had been tense, became soft, the respiration promptly improved and deglutition was progressively easier. There were no further convulsions. This baby was frail for the first few months, but happily was provided with breast milk. It is now perfectly well at the age of five years.

Case II. A male infant, seen on the second day, the mother being a primipara in her fortieth year and the labor unusually prolonged (fifty-four hours). There was definite trauma present; there was a large external cephalhematoma over the right parietal region and there had been free bleeding from the nose. The coagulation time was normal. The baby was in a profound stupor, respiration was superficial, the pulse feeble, the temperature ranging from 103 degrees to 106 degrees F. Convulsions supervened on the second day and were general in character, occurring every two or three hours. The exhaustion following these convulsive attacks was so extreme that a fatal issue seemed imminent. Lumbar puncture was suggested and somewhat grudgingly accepted. Blood, freely mixed with spinal fluid under considerable pressure was withdrawn after an unsuccessful first effort. The clotting and bleeding times were normal. The convulsions did not cease until the fourth day, but gradually became less severe and the space between them widened. The baby, being badly dehydrated, was given normal salt solution intraperitoneally and glucose and soda solution by gavage, until weak milk mixtures could be given. Breast milk was not obtainable at any time, but the infant is thriving at the age of eighteen months.

Case III. Seen on the third day while in convulsions. The mother, a primipara of 26,

had been in labor about twelve hours, and the accouchement seemed normal in every respect. On the second day the baby became cyanotic and was unable to swallow, there was tension of the fontanel, spasticity of the right arm and leg, twitching of the facial muscles. Convulsions then ensued, lasting about three minutes. The baby vomited whatever was given by gavage. The temperature was elevated at times, then rapidly dropped to sub-normal stage; the respirations were hurried, the pulse strong. Lumbar puncture first brought away spinal fluid containing many small clots and free red cells, under heightened pressure. A second puncture, twelve hours later, showed typical xanthochromia. The symptoms were relieved sufficiently to enable the baby to nurse. It was removed to the Children's Hospital and kept under observation for four weeks. It gained in weight, but slight rigidity of the neck and spasticity of the right arm and leg persisted. At this time, the baby being six months of age, it is still unable to sit up, but its mental status seems normal.

Summary

Analysis of the data in our possession, relative to the origin and course of infantile apoplexy, forces upon one the rather disquieting conviction that the profession has been singularly remiss in safeguarding life at its beginning. It develops also the fact that intracranial hemorrhage of the newborn is, in many instances, preventable and, in other cases, may be relieved by simple measures before serious consequences ensue. This brief epitome justifies the following

Conclusions

1. There should be closer co-operation between the obstetrician, the pediatricist, the pathologist, the surgeon, and the neurologist.
2. The care of the newborn should embrace the determination of the clotting time and the bleeding time, in all cases.
3. Asphyxiated infants are often potential bleeders and should receive intensive study until hemorrhage can be excluded.
4. Lumbar puncture and cisterna puncture are invaluable agents in diagnosis and treatment.

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⁵Pearce: Abt's Pediatrics: Vol. 11, Page 353 et seq.

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⁸Sharpe: Internat. Clinics: IV, 249, No. 29.

DISCUSSION

W. D. Van Stone, Denver: Dr. Amessee is certainly to be congratulated on presenting a very disagreeable paper in a pleasant manner. He has given us facts in the case, and his recommendations are worth while. However, I shall let the pediatricians discuss that. I have taken the liberty of looking up some statistics in the Colorado State Board of Health, and find that for the year 1921 and 1922, there was an average of 600 still births in the state of Colorado, and that means for about every thirty living babies, there is one born dead. To me, that seems to bring up the old question of education, better and further education of the medical student. Let them know this, that they are not able to handle every case they get hold of; and, of course, proper medical legislation.

George A. Moleen, Denver: Any one who has seen such defects persist through childhood and adult life, and which can be premised upon such reasons as have been brought out by Dr. Amessee, cannot but feel grateful for any effort that is made to elucidate the circumstances and conditions underlying them, and to propose anything which will curtail, or at least limit, the effects. The frequency, Dr. Amessee has pointed out, whether it is indicated by the number of still births, the number of defectives, epileptics, retardations, hemiplegics, is a question. One cannot say that these are all due to hemorrhage of the brain, *per se*. They may be due to diseases of the vessel which will cause a cerebral apoplexy in childhood; they may be syphilitic; they may be caused by disturbed metabolic processes, or infected conditions in the uterus; but the great majority occur from hemorrhage, and this may be due in part to the use of instruments. Gowers places the proportion of cases in which the presentation is unnatural at one-fifth of the total number; Gowers also states that it is not so much the forceps as the condition which required the use of forceps, which is responsible for the damage. As to the proposed method of treatment, I have had no experience and I do not wish to go into detail, although lumbar puncture I would regard the procedure of choice. I think the question of cistern puncture is to be only done in extreme cases, and then only in the hands of those who are well experienced. Unfortunately, all hemorrhages that occur at the time of birth are not as depicted in the picture. Hemorrhages occurring which compress the bulb to the extent portrayed, are I believe, still born. However, one can drain

in such extreme cases, by means of the cistern puncture, the blood which has found its way into the subdural spaces from the veins of the cortex which enter the superior longitudinal sinuses, and this is the source in a large proportion of these infantile hemorrhages. The cistern puncture, therefore, I think is to be avoided except in extreme cases, and then only in the hands of an experienced operator. The danger of going into the medulla, if the hemorrhage has not pushed it forward, is great, and if it has pushed it forward, the child is probably dead.

Philip Work, Denver: I merely want to call attention to a fact or feature that was not very fully brought out or touched on by Dr. Moleen, and that is the lumbar and cisterna puncture in these cases. The cisterna puncture, I agree very heartily with Dr. Moleen, is certainly no job for an amateur. It is something to be undertaken as a last resort, and after considerable thought. My experience with lumbar puncture, on the contrary, has been very gratifying. We know that the damage in skull fractures or compression is not injury to the skull itself, but the resultant damage to the brain. Operation is likewise to be undertaken after considerable thought, in children, and lumbar puncture in any reasonable hand of experience, is relatively safe. I have in mind eighteen fractures of all ages seen in the last year, none of them operated, all of them treated by puncture repeatedly, bringing fluid, and with a gratifying percentage of recovery, not only as to life, but as to paralysis. Seventeen, in fact, in a series, have lived with very slight residual paralysis. This is of more value in children, because we all know the prenatal defects show up later in the individual in life, and I merely want to speak a word for lumbar puncture in properly considered cases. It is relatively safe, it is relatively simple, and exercised with due precaution should be resorted to more than other procedures.

WHAT FOOLS INDEED!

You know the Model of your Car,
You know just what its powers are,
You treat it with a deal of care
Nor tax it more than it will bear.
But as to self—that's different;
Your mechanism may be bent,
Your carburetor gone to grass,
Your engine just a rusty mass.

Your wheels may wobble and your cogs
Be handed over to the dogs.
And you skip and skid and slide
Without a thought of things inside.
What fools, indeed, we mortals are
To lavish care upon a Car
With ne'er a bit of time to see
About our own "machinery!"

—John Kendrick Bangs.

EVOLUTION

A mystery surrounds our lives;
We live, we die, but God survives;
And as the cycling ages roll
Us nearer to the final goal,
We strive in vain with straining eyes
To pierce the eternal mysteries;
Light! give us light! we faint, we die,
Eternal Spirit, hear our cry.

—Author Unknown.

INCIDENCE OF RICKETS IN COLORADO WITH A REPORT OF A CLINICAL SURVEY AND CLIMATOLOGICAL OBSERVATION

ROY FORBES, M.D., and BERRYMAN GREEN, M.D.
DENVER, COLORADO

The pediatrician and the orthopedist who have had experience in eastern clinics are invariably impressed by the relative infrequency of rachitic deformities in Colorado. Even in the Italian or Negro sections of Denver, one does not see bowlegged children on the streets. Orthopedists are seldom called upon to operate for genu valgum or varum.

Dr. H. W. Wilcox, Denver, says: "The impression which I have gained during nearly twenty years of observation in regard to bony deformities which can be directly traceable to rickets as a cause, such as bow-legs, knock-knee, rachitic scoliosis and kyphosis, and coxa vara, is that they are relatively uncommon in Colorado:

Roentgenologists are not called upon to make diagnosis of rickets by x-ray, nor do they see frequent evidence of rachitic epiphyseal changes in their routine work. Dr. F. B. Stephenson states: "I have checked over all my plates of the past two years of children aged two years or under, which showed any of the parts that ordinarily give x-ray evidence of rickets. I find 10 per cent of the chest plates show definite evidence of rib beading. Only 1 per cent of other cases show epiphyseal signs of rickets."

The present survey was undertaken for the purpose of determining the incidence of clinical rickets in Colorado. The month of March was chosen for the examination because the highest incidence of active rickets is anticipated during this month. The examinations were conducted at the weekly conferences of six of the infant welfare stations, 503 infants ranging in age from two weeks to twenty-four months being included in this study. A few infants examined at rural health conferences during March are included in the series. The observations were made by both of us and the possibility of error due to the personal equation is fully admitted. However, a considerable number of infants examined in the early part of the study were seen by both of us together and

an analysis of the later examinations showed that our observations tallied closely to the relative incidence of the various signs of rickets. It was not possible to invoke laboratory aid for blood chemical or roentgenological evidences of rickets in the group examined and without such laboratory aid, many early or borderline cases cannot be properly diagnosed. The clinical findings recorded in each case were beading of the ribs, epiphyseal enlargement, Harrison's groove or lateral flattening of the thorax, cranial bosses, craniotabes and headsweating. Note was taken of the nationality, weight and kind of feeding and hygienic factors were recorded in 200 of the families.

Beading

In recording examination for rosary and enlargement of epiphyses, the findings were

+

expressed as -, +, ++, and +++, but in attempting to make a diagnosis of rickets

+

in any given case, the - findings, of which there were only 13, were considered as negative. Beading was by far the most frequently encountered positive sign, and when definitely positive and associated with any other signs of rickets was considered sufficient evidence for a positive diagnosis. Only eleven of the cases showed more than one plus beading, and only two of these were recorded as three plus. Although an early sign of rickets, beading is uncommon before

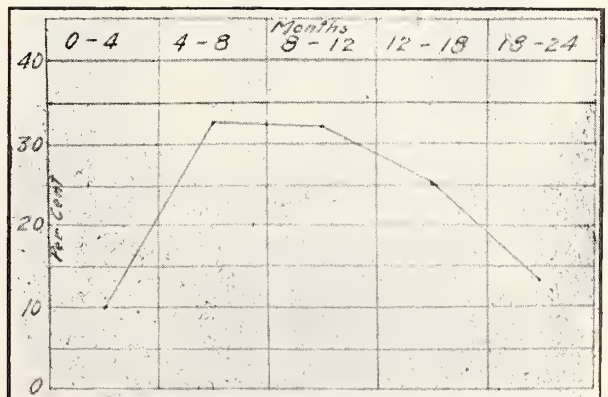


Chart 1. Percentage diagnoses of rickets in 503 children under 2 years.

the fourth month, but one case, a Spanish infant of 2½ months, showed ++ beading, + epiphyses, craniotabes, and headsweating.

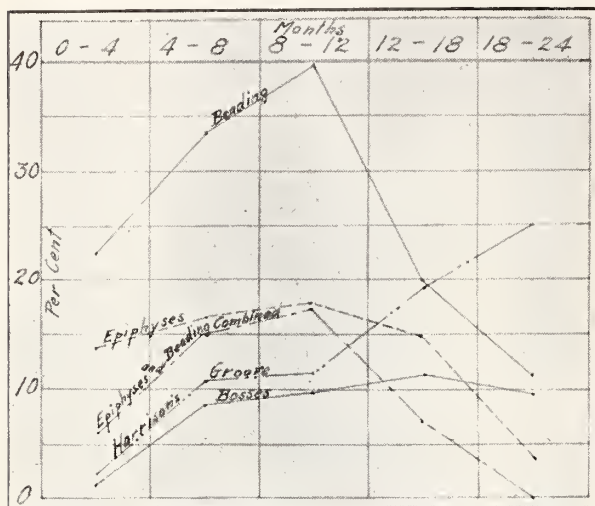


Chart 2. Percentage incidence of beading, enlarged epiphyses, Harrison's groove and cranial bosses.

It will be noted that the curve for beading (chart 2) is very similar to the curve for positive diagnosis (chart 1), indicating the constancy of this sign.

Epiphyses

Enlarged epiphyses were much less common than beading. Recognition of this sign in young and in poorly nourished infants was often difficult and x-ray diagnosis would probably have changed some of our findings. Only 16 cases showed more than one plus epiphyseal enlargement and 7 of these were Negro babies, although only 26 Negro babies were included in the series. Wright does not consider epiphyseal enlargement a valuable early sign of rickets, but most authorities rank this sign next in importance to the rosary. In this series the highest incidence of epiphyseal enlargement was in the 4-8 months, and 8-12 months groups, indicating that the sign is an early one, but the curve (chart 2) does not fall as rapidly in the 12-18 months group as the curve for beading.

Bosses and Harrison's Groove

Prominent bosses and lateral flattening of the thorax of Harrison's groove were signs more commonly observed in the older age groups (12-24 months), but their interpretation was difficult. Sometimes there were

other evidences of rickets, active or arrested, but not infrequently one of these signs was recorded with no other evidence of rickets. It is our impression that these signs are inconstant and more or less variable in the mild forms of rickets usually encountered in Colorado. However, of the 25 colored children over 2 months of age examined, 15 showed one or both of these signs.

Headsweating

Headsweating must always be considered as an unreliable sign, because factors other than rickets may account for it. In such a survey as this, it is particularly unreliable because the testimony of no trained observer was available and the statements of the mothers are frequently not accurate. However, we were greatly impressed by the constancy with which we found headsweating associated with some other sign of rickets, particularly beading. There is a rather striking similarity between the curves of beading (chart 2), positive diagnosis (chart 1) and headsweating associated with one or more signs of rickets (chart 3). Headsweat-

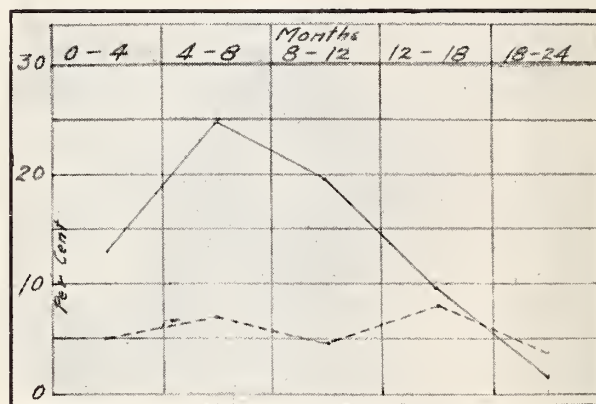


Chart 3. ——— Headsweating with one or more signs of rickets.
----- Headsweating with no signs of rickets.

ing without any signs of rickets was found in from 3.8 per cent to 7.9 per cent of the cases in all age groups.

Craniotabes

Authorities differ as to the significance of craniotabes as a sign of rickets. Hess states that "its absence possesses no diagnostic significance whatsoever; its presence must be considered with various reservations." . . . "Craniotabes frequently disappears during

and despite the development of the characteristic clinical, radiologic and chemical signs, and in babies under 6 months of age it has been associated in numerous instances with a normal inorganic phosphate content of the blood." Wright¹ discussing clinical signs of infantile rickets as observed in Vienna concluded that craniotabes is practically always a sign of active rickets and that it is an early sign. In this series the highest incidence of craniotabes was found to be in the 4-8 months age group (chart 4).

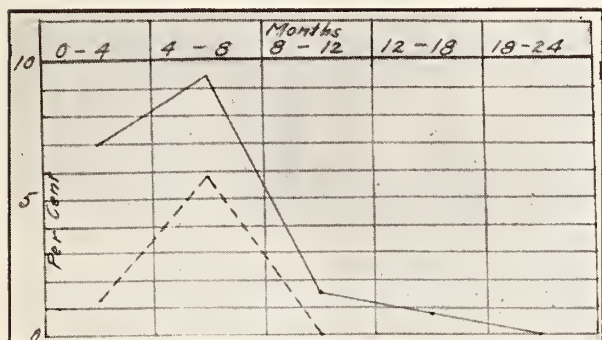


Chart 4. Percentage incidence of craniotabes.

—— with one or more signs of rickets.
 ----- with no signs of rickets.

In 9.4 per cent of the cases it was associated with one or more signs of rickets and in 5.8 per cent with no signs, hence it would seem to be of less significance than some of the other signs.

Other Signs Associated With Rickets

The children in the older age groups were examined for bowlegs, but only one child, a negro of 24 months showed any evidence of this sign of marked rickets, and in this case the bowing was not pronounced. One infant aged 16 months had a typical spasmophilia and also showed + beading and + epiphyses. Spasmophilia is relatively uncommon in Colorado having been diagnosed only two times in the records of Children's Hospital (Denver) in the past three years. Rickets appears in the diagnosis records only twenty-four times.

Relative Incidence in Special Groups

Denver has a relatively small foreign and colored population, and of the 503 cases, 411 were recorded as American. The percentage of positive diagnosis of rickets for this group was 20.77 per cent as compared with

24.18 per cent for the entire group. One welfare station situated in the Italian district showed the lowest incidence of rickets. Of the 28 babies examined here, only 14.73 per cent showed rickets. Nearly all the Italian babies are breast fed, the living conditions are fair and advanced rickets is rarely seen at the clinic. The highest incidence of rickets was found in the group of 26 colored infants, 78.2 per cent, and these cases were usually more marked than the rickets observed in the white children. Of 18 twins, 55 per cent showed rickets as well as 35.7 per cent of the 14 premature babies.

Age Incidence

It will be noted in chart 1 that the greatest incidence of rickets occurred in the 4-8 and 8-12 months groups and that the curve fell rapidly during the second year. Some explanation for these findings is necessary because most authors state that the highest incidence is at the end of the first and beginning of the second year. Thus, Griffith quotes Baginsky² figures for 620 cases in which 43 occurred from 3-6 months of age; 173 from 6-12 months; 220 from 12-18 months, and 113 from 18-24 months. The low incidence with our older age groups was not due to the administration of cod liver oil. Only 15 babies in this series had ever received any cod liver oil and 8 of these were rachitic, the oil having been prescribed for therapeutic rather than prophylactic reasons. The probable explanation of the age incidence of rickets in Colorado babies is to be found in the climatic considerations which also, we believe, accounts for the relatively low total incidence (25 per cent) of the series. That is, the older babies have access to more sunlight and have more hours of sleep or play out-of-doors than the younger babies.

Climatologic Considerations

In this survey we first attempted to show the incidence of clinical rickets in Denver. Yet the probable explanations for our findings are no less interesting.

The value of sunlight in the treatment of rickets is now generally recognized, for it has been shown that of all the factors concerned, certain light rays have by far the greatest effect on the prevention and cure of

this disease. Huldsehinsky proved that rickets could be definitely cured, as noted by the radiograph, by means of frequent exposures to the rays of the mercury vapor quartz lamp while Hess and Unger³ proved that a similar cure could be brought about, although the diet remained unchanged when infants were exposed to the sun. Experimentally, rats fed on standard rickets-producing diets can be regularly protected or cured by treatment of this kind.

The study of sunlight at different elevations reveals some rather significant facts. Rosselet⁴ in his analysis of sunshine in Switzerland concluded that the greatest difference in solar intensity measured on the plains and at high altitudes occurred in the winter months. While the absolute intensity of ultra-violet rays was always greater at high altitudes than in low country, the difference was only very great in winter. It was also interesting to note that 75 per cent of the total energy given out by the sun reaches an altitude of 6,000 feet whereas only 50 per cent reaches sea level.

The effect of insolation is not entirely understood but according to Dietrich⁵ we regard the following facts as established, namely: (1) "Increased pigmentation, (2) increased metabolism, (3) increase in number of erythrocytes, (4) increased growth of hair, (5) local hyperaemia, (6) decrease in number of respirations, (7) increase in depth of individual respiratory acts, (8) fall of blood pressure, (9) stimulation of the

nervous system." When light penetrates the skin practically all the chemical rays are absorbed by the blood. Von Schlaffer has shown that blood during exposure to light absorbs light energy, which it can transfer in the dark to a photographic plate. He very pointedly remarks, "Is it possible that it can also surrender this accumulated energy to the internal organs and thereby influence their function and possibly pathologic processes?" Rosselet and Rollier assert that, "The indirect action of sunlight is founded on fact; light absorbed by the skin gives rise to numerous and useful reflexes; absorbed by the blood the energy given out by the radiations is stored and carried in the blood stream to every part of the body; when liberated it stimulates the intracellular processes of oxidation and reduction and this is the probable explanation for the increased metabolism resulting."

That rickets can be cured or prevented by exposure to ultra-violet rays is now beyond doubt, and therefore it may be assumed that the good results from insolation are due mainly to this group of rays. Referring to chart 5, Hess⁶ says, "It is perhaps here that we have the peculiar seasonal incidence of rickets, that its development in winter and early spring and its subsidence in summer is to be accounted for mainly by the degree of ultra-violet light afforded infants during these periods."

On account of the high altitude (5,200 feet), such marked seasonal variations in

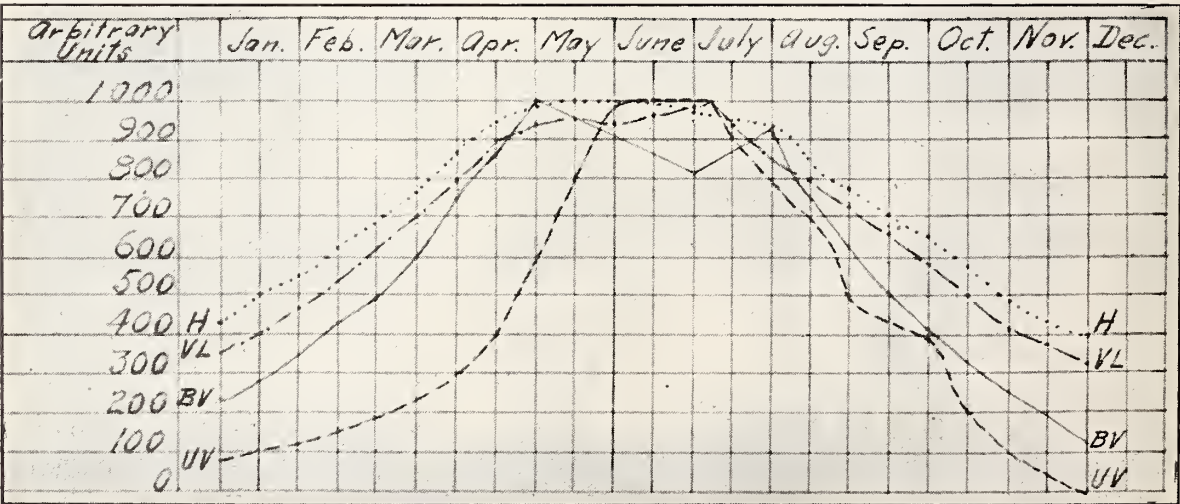


Chart 5. Seasonal variations of the sun's spectrum: H, solar heat; VL, visible light; BV, blue violet; UV, ultraviolet.

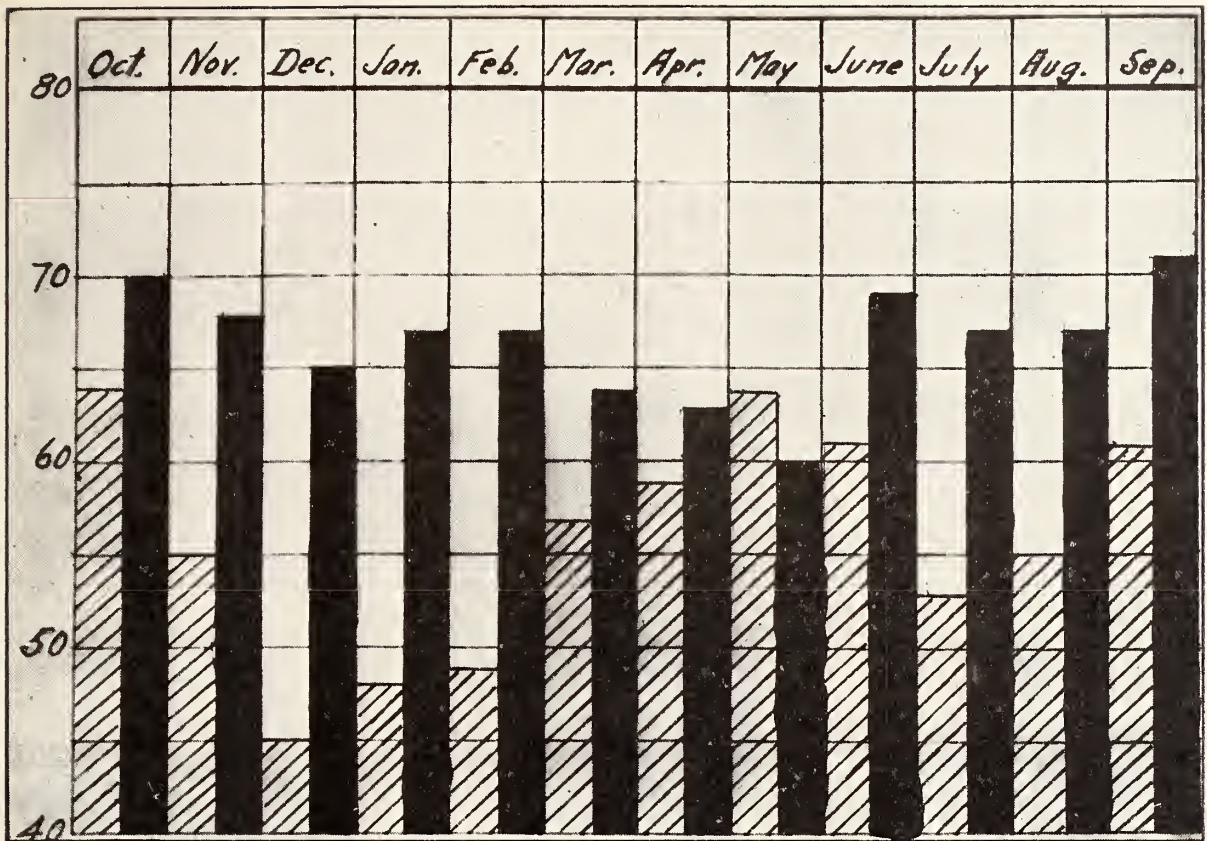


Chart 6. Showing average of per cent of possible sunshine in New Orleans and Denver. Partial shading represents New Orleans' average for 25 years. Solid black represents Denver average for 35 years.

the intensity of these rays does not occur in Denver. Not only is this true, but the percentage of sunshine here is almost as great in winter as in summer. Chart 6 shows very strikingly the amount of sunshine recorded in New Orleans and Denver. Note particularly this comparison for the winter months. The same contrast occurs between this city and either New York or Chicago as evidenced by the figures in chart 7. As an average, in Denver, over many years, from the first of December to the end of February, less than 5 of the 90 days have had no sunshine. The mean relative humidity for each month of the year recorded in these four cities (chart 7) affords an interesting comparison as moisture plays a large part in determining the volume of ultra-violet rays which reach the earth.

Conclusions

1. Severe rickets is not common in Colorado as evidenced by the relatively few orthopedic corrections necessary. Only one case of bow legs was encountered in a survey of 503 infants.

2. Mild rickets is much less common in Colorado than in eastern states.

3. Rickets in Colorado reaches its highest incidence in the latter half of the first year and is relatively uncommon in the second year, at the age when rachitic deformities are frequently noted.

4. Beading of the ribs was the commonest physical sign and the evidence of this sign bears a close relation to the incidence of rickets as diagnosed in a clinical survey.

5. Epiphyseal enlargement was the second most frequent sign noted.

6. Craniotabes was found to be associated with other signs of rickets in 9.4 per cent of the babies from 4-8 months of age and with no signs of rickets in 5.8 per cent of this age group.

7. Headsweating, although considered an unreliable sign, was commonly associated with other signs of rickets, especially beading. Headsweating without any signs of rickets was present in from 3.8 per cent to 7.9 per cent of the cases in all age groups.

8. The highest incidence (78.2 per cent)

	RELATIVE HUMIDITY				MEAN TEMPERATURE				PRECIPITATION INCHES				SUNSHINE % OF POSSIBLE			
	Denver	Chicago	New York	New Orleans	Denver	Chicago	New York	New Orleans	Denver	Chicago	New York	New Orleans	Denver	Chicago	New York	New Orleans
January	56	79	74	78	31	24	31	53	.43	2.25	3.47	4.63	67	45	46	48
February	57	78	70	77	32.7	26	30.7	56.3	.53	2.10	3.63	4.47	67	51	52	49
March	53	75	68	77	40.3	36	38	62	.98	2.60	3.85	5.30	64	54	54	57
April	53	71	61	76	48.2	47	42.2	67.9	2.10	2.85	3.38	4.90	63	59	56	59
May	54	70	60	76	56.5	57	60.5	74.5	2.40	3.58	3.25	3.58	60	64	59	64
June	49	71	65	78	66.5	67	70	77.6	1.40	3.32	3.40	6.16	69	71	64	61
July	50	69	63	79	72	73	75.2	81.3	1.79	3.37	4.47	6.47	67	73	64	53
August	52	71	68	79	70.9	72	73.2	82.2	1.45	3.02	4.39	5.61	67	70	63	55
September	49	71	68	78	62.6	65	67	79.2	1.00	3.10	3.57	4.81	71	65	61	61
October	50	71	64	76	51	54	56	69	1.03	2.57	3.74	4.81	70	60	57	64
November	53	74	64	78	39.8	40	44.2	60	.58	2.39	3.13	3.79	68	47	50	55
December	56	78	68	78	32	29	34.2	54.4	.71	2.27	3.45	4.46	65	41	48	45
Yearly	53	73	66	78	50	49	52.5	69.2	1.42	3.0	4.27	5.70	66	58	57	57

Chart 7.

of rickets and the most marked cases were encountered in the small group of colored babies examined; the lowest incidence (14.73 per cent) was found in an Italian welfare station.

9. Denver receives from 18 to 21 per cent more sunshine during the winter months than either New York, Chicago or New Orleans.

10. The ultra-violet light intensity is greater at all seasons of the year in Denver than in the other cities considered.

11. The low incidence of rickets may therefore be attributed to the high percentage of sunshine afforded during the winter months and the intensity of the ultra-violet light content at this altitude.

References

¹Wright, H. P.: Notes on The Clinical Signs of Infantile Rickets as Observed in Vienna. Canadian Med. Assn. Jour., April, 1924, p. 320.
²Griffith, J. P. Crozer: The Diseases of Infants and Children, vol. 1, page 585. Philadelphia, 1919. W. B. Saunders Company.
³Hess, A. F., and Unger, L. J.: Cure of Infantile Rickets by Sunlight. Jour. Am. Med. Assn., 1921, vol. 77, p. 39.

⁴Rollier: Heliotherapy. Pages 158-214. London, 1923. Oxford Medical Publications. Henry Frowde and Hoddard and Stoughton.
⁵Abt, Isaac O.: Abt's Pediatrics. Vol. 2, p. 344. Philadelphia, 1923. W. B. Saunders Company
⁶Abt, Isaac A.: Abt's Pediatrics, vol. 2, p. 918. Philadelphia, 1923. W. B. Saunders Company.

COSTLY EYESIGHT

Defective eyesight in the public schools is costing the taxpayers of the nation at least \$130,000,-000 annually, it is asserted by the Eye Sight Conservation Council of America, which, in a statement sent to directors of summer schools throughout the country, urges organized conservation of vision as a social and economic need .

The Council points out that poor eyesight is responsible for much of the retardation in schools, and makes public the results of investigations showing that a large proportion of backward children have visual defects.

Accompanying the statement is a report revealing that heavy moral and financial losses arise from this evil. Approximately 25 per cent of all school children in the United States, the Council finds, are retarded in their studies and fully one-third of this retardation is conservatively estimated as due to defective vision.

If this is a correct estimate, there are at least 2,000,000 school children in the United States one or more years behind in their studies because of defective vision, says the Council's report.

SYSTOLE

All men mean well.—Bernard Shaw.

'Tis immortality to die aspiring.—George Chapman.

Discretion of speech is more than eloquence.—Francis Bacon.

Good health is equal to a thousand blessings.—Proverb of Hindustan.

Work is good, provided you do not forget to live.—Proverb of West Africa.

Do not remit your efforts though the world should end.—Indian Proverb.

Wise people do not contend against the tongues of fools.—Japanese Proverb.

A ship should not ride on a single anchor, nor a life on a single hope.—Epictetus.

Better a doubtful condition of things than a crushing defeat.—Sanskrit Proverb.

He that winna be ruled by the rudder maun be ruled by the rock.—Scotch Proverb.

The recognition of one's own imperfections is very high perfection.—Spanish Proverb.

If thou hast never been a fool, be sure thou wilt never be a wise man.—Lovel the Widower.

The beginning of a ship is a board, of a kiln a stone, of a king's reign salutation, and the beginning of health is sleep.—Irish Proverb.

The tree that is cut down grows again; the moon that wanes after a time waxes again. Thus do wise men reflect and, though distressed, are not overwhelmed.—Sanskrit Proverb.

DIASTOLE

Strange thing that a bank clerk's speculations so often follow speculations!

"Is Jimmie's spelling good?"

"No; he gets too much static in it."

"Where was I five years ago, mama?"

"Why, you weren't even alive, darling."

"Was I in the cemetery, mama?"

"That patient of yours looks all washed out."

"Yes. He's just had a gastric lavage."

Dollie: "You're not playing your regular game of bridge."

Mollie: "No, dear. I can't think today; I've such a tight marcel."

"How did lawyer Slick come to win his case?"

"He just moved that the evidence from the other side be stricken out."

To give yourself a chiropractic treatment, stand with your back against a door knob, take a pinch of snuff, and stand steady. The recoil will save you two dollars.

In 1950: "According to an Associated Press report a million dollars worth of illicit liquor was seized yesterday in New York. The bottle was promptly emptied by the authorities."

In Bible times: Gatekeeper: "Leper, know ye not that the law provideth forty stripes for the unclean that shall enter this city?"

Leper: "Go to it, bo. I've got the anesthetic form of leprosy."

If a stunning lady stuns you with her automobile, the chances are that she is following a little tip published in Beauty—"Avoid a direct light falling upon your eyes, and keep them closed when passing swiftly moving objects."

NEWS NOTES

Dr. O. S. Fowler read a paper before the Medical Society of Lincoln, Nebraska, on December 27.

In his recent accident in Ohio, Dr. L. H. McKinnie sustained a compression fracture of the first lumbar vertebra. He is under the care of Dr. Albert H. Freiberg at the Good Samaritan Hospital, Cincinnati, and is reported to be making good progress.

Dr. H. J. Rossiter has moved from Deer Trail to the State Industrial School at Golden.

Dr. J. M. Foster of Denver has returned from California.

Members of the Denver Chamber of Commerce were recently the guests of the new Colorado General Hospital.

A New Year's reception was given at the new Colorado General Hospital. Many Denver and out-of-town doctors made the rounds of the buildings.

Newly-elected officers of the Denver Medical Society are: President, Clinton G. Hickey; vice president, Minnie C. T. Love; secretary, L. V. Sams; treasurer, H. W. Stuver; censor, R. S. Chamberlain; trustee, W. A. Sedwick.

Drs. G. K. Dunklee and N. Mumey announce their association in the practice of medicine and surgery with offices in the Majestic Building, Denver.

Dr. Harry Gauss is taking a fellowship at the University of Minnesota, specializing in gastroenterology.

Dr. Walter Hotchkiss of Brighton and Dr. Craig Price of Denver are expecting to join the Interstate Post Graduate Clinic Tour to Canada, the British Isles and France this spring.

Mr. Clement R. Troth, the well known medical book dealer of Denver, died recently in California.

Dr. C. B. Lyman has returned from California, having made the trip from New York by way of the Panama Canal.

Dr. C. H. Morian has moved his offices to the Majestic Building, Denver.

WANTAD

Office space available in Metropolitan Building, no equipment necessary. Box 1, Colorado Medicine.

BARBITAL AND BARBITAL-SODIUM

On November 14th, 1924, President Coolidge, following the unanimous recommendations of the United States Tariff Commission, proclaimed that "to encourage industries in the United States, and for other purposes" the duty on diethylbarbituric acid and its salts, known as Barbital and Barbital-Sodium in this country, and which are chemically identical with Veronal and Veronal-Sodium, be computed upon the American valuation instead of the foreign valuation.

This is the first action of the President under the flexible tariff provision approved by Congress in 1922, in which the principle of American valuation has been put into effect.

NEW BOOKS

THE SOUL OF YOUR CHILD. By Heinrich Lhotzky. 12mo. New York: Dodd, Mead & Co. \$1.50. The author's theory of true education, consisting of obedience and freedom.

STUDIES IN HUMAN BIOLOGY. By Raymond Pearl. Svo. Baltimore, Md.: Williams & Wilkins Company. \$8.00. Man as an animal; biological aspects of vital statistics; public health and epidemiology; the population problem.

SCIENCE. By Duren J. H. Ward. Pamphlet. Denver, Colo.: Divide Publishing Company. The meaning and goal of science.

HOW FOSTER CHILDREN TURN OUT. Pamphlet. New York: State Charities Aid Association. A study by the State Charities Aid Association made under the direction of Sophie Van Senden Theis.

SCIENTIFIC RESEARCH AND HUMAN WELFARE. By Franklin S. Harris. 12mo. New York: The Macmillan Company. \$.50.

CHILD LABOR AND THE SOCIAL SCIENCE. By Davis Wasgatt Clark. New York: The Abingdon Press. \$1.00. A child labor primer. History and issues of that question.

WHAT AILS OUR YOUTH? By George A. Coe. New York: Charles Scribner's Sons. \$1.25. Habits and attitudes of the modern young people.

A LABORATORY OUTLINE OF SMITH'S ELEMENTARY CHEMISTRY. By James Kendall. 12mo. New York. The Century Company. An outline paralleling the subject matter presented in the revised edition of Alexander Smith's "Elementary Chemistry."

CONSCIOUS AUTOSUGGESTION. By Emile Coue and J. Louis Orton. New York: D. Appleton & Co. Autosuggestion and its application to definite human ills. A textbook.

SMITH'S ELEMENTARY CHEMISTRY. By James Kendall. 12mo. New York. The Century Company. A textbook for classroom use, revised and rewritten.

THE ELECTRON. By Robert Andrews Millikan. 12mo. Chicago, Ill.: University of Chicago Press. \$1.75.

THE FRUIT OF THE FAMILY TREE. By Albert Edward Wiggam. Svo. New York: Bobbs-Merrill Company. The facts of marriage, beauty, brains and the science of heredity.

SAFEGUARDING CHILDREN'S NERVES. By James J. Walsh and John A. Foote. 12mo. Philadelphia: The J. B. Lippincott Company. \$2. A handbook of mental health.

WILL CRAWFORD GORGAS. By Marie D. Gorgas and Burton J. Hendrick. 12mo. New York: Doubleday, Page & Co. \$.50.

Life and work of the conqueror of yellow fever.

THE EDUCATION OF HANDICAPPED CHILDREN. By J. E. Wallace Wallin. 12mo. Boston: The Houghton, Mifflin Company. \$2.25.

NEW BIOLOGY. By W. M. Smallwood, Ida L. Reveley and Guy A. Bailey. 12mo. New York: Allyn & Bacon. \$1.60.

A text-book for classroom use.

MAGAZINE ARTICLES

- WHAT IS IT WORTH TO BE FIT? By Walter Camp. Collier's, January 17.
- RECENT SCIENTIFIC DEVELOPMENTS. By Watson Davis. Current History, January.
- SCARLET FEVER CONQUERED. By Dr. Walter B. James. Outlook, January 7.
- SHOULD A BOY RUN WILD? Dr. Harvey Wiley. Good Housekeeping, January.
- IS PSYCHICAL RESEARCH A SCIENCE? By Tod Robbins. Current History, January.
- WHY NOT A WAR OF EXTERMINATION UPON THE TYPHOID GERM? Outlook, January 7.
- WHAT PARENTS SHOULD KNOW ABOUT WHOOPING COUGH. By Dr. Henry L. K. Shaw. Delineator, February.
- PLEASE PASS THE IODINE. By Woods Hutchinson, M.D. Saturday Evening Post, January 5.
- CHLORINE GAS FOR COLDS. By Oliver Peck Newman. Review of Reviews, January.
- THE OPIUM PROBLEM POSTPONED. New Republic, December 31, 1924.
- THE BETTER THE BABY THE BETTER THE BRAIN. By W. R. O. Emerson, M.D. Woman's Home Companion, February.
- ON THE RURAL HEALTH FRONT (Camera Studies). By L. W. Hine. Survey, January 1.
- HOW HUMAN TRAITS ARE INHERITED. By French Strother. World's Work, January.
- HEALTH TO THE CROSSROADS. By Mary Ross. Survey, January 1.
- DR. REGINALD G. HARRIS, BIOLOGIST. World's Work, January.

MEDICAL SOCIETIES

ARKANSAS VALLEY

The officers of **The Arkansas Valley Medical Association** are now planning for their next semi-annual meeting. The date set is February 14th, and the gathering will be held in Colorado Springs.

The morning hours will be given to Clinical cases and the afternoon to the papers. One Chicago man has already accepted the invitation extended and he will have part in both clinics and papers. A Philadelphia man has been invited also. In addition, men of national repute will be on the program.

Efforts are being put forth to make this a big affair and it is expected that doctors from all over the state will be present, and all will be welcome.

The full program will be ready for the February issue of Colorado Medicine.

The Arkansas Valley Medical Society will hold its next meeting at Colorado Springs, February 13, with headquarters at the Antlers Hotel. The morning will be devoted to a clinic, with papers in the afternoon. Dr. E. L. Kenyon of Chicago will present cases in the morning and in the afternoon a paper on "Causes and Significance of Diseases of Speech in Children"; and Dr. A. J. Cramp, of "The Propaganda of Reform" department of the

A. M. A. will present a paper on "Quacks and Non-trusts". The remainder of the program will deal with allied subjects and be mailed in the near future.

T. R. KNOWLES,
Secretary.

COLORADO OPHTHALMOLOGICAL

The regular meeting of the **Colorado Ophthalmological Society** was held on Saturday, October 18, 1924, in the assembly hall of the El Paso County Medical Society, Colorado Springs, Dr. J. A. Patterson presiding.

E. M. Marbourg, Colorado Springs, presented a remarkable case of herpes zoster ophthalmicus. The active condition had occurred in December, 1923. There were cicatrices over the entire frontal area and extending back to the occiput. The hair had been lost over the entire right side of the head. There was a leucoma of the right cornea, and the right fifth nerve was partially anesthetic. Discussed by Edward Jackson, E. R. Neep, J. A. Patterson, and W. C. Finnoff.

E. M. Marbourg, Colorado Springs, presented a negro woman aged fifty years who had come on account of failure of vision of the right eye, noticed for the past two or three years. There was a cyst between the layers of the pigmented epithelium on the posterior surface of the iris. Discussed by W. C. Finnoff.

E. R. Neep, Colorado Springs, presented a child aged eleven years who had come because the eyes were red and itching. The condition was probably vernal conjunctivitis. The palpebral conjunctiva was pale and had large flat masses above and at the ends of the tarsus. Discussed by W. C. Finnoff and Edward Jackson.

E. R. Neep, Colorado Springs, presented a boy aged twelve years that at three years of age had been struck in the left eye with a toy arrow. Iris and vitreous prolapse had been excised, and the wound covered with conjunctiva.

E. R. Neep, Colorado Springs, presented a girl aged eight years who had what apparently was a pigmented mole at the inner end of the upper and lower lids of the right eye. The condition had been treated, perhaps inadequately, with radium about a year before. Discussed by W. C. Finnoff.

E. R. Neep, Colorado Springs, presented a woman aged fifty-eight years the vision of whose left eye had fallen to 10-120. There were a number of vacuoles in the cortex of the crystalline lens. Discussed by D. A. Strickler and W. A. Sedwick.

J. A. Patterson, Colorado Springs, presented a child who had vernal conjunctivitis of long duration. The principal complaint had been of lachrimation, photophobia, and congestion. There was intense thickening and redness of the bulbar conjunctiva at the limbus, more marked opposite the palpebral aperture. The diagnosis was made on account of the extreme pallor of the palpebral mucosa. Marked benefit was obtained from radium after a number of other remedies had more or less completely failed. Discussed by W. C. Bane and W. A. Sedwick.

J. A. Patterson, Colorado Springs, presented a man aged forty-seven years who had come complaining of the appearance of waves before the right eye, and sometimes of a black mist or circle, dating back for three weeks. There was a relative scotoma between twenty-three and thirty-three degrees upward and a hundred and twenty and fifty-five degrees laterally, with a positive

scotoma forming the nasal border of the relative scotoma. The condition was probably retrobulbar neuritis. Discussed by D. A. Strickler.

J. A. Patterson, Colorado Springs, presented a man aged forty-six years who had come on account of pain and redness in the right eye, with marked tumefaction of the nasal half of the eyeball. The conjunctiva was greatly thickened and of the color of beefsteak. The pupil was active, the eye was tender on palpation, and tension was plus one. The eye had never been other than useless as long as the patient could remember. The acute condition was episcleritis. The same eye also presented a large mass in the vitreous which came forward toward the lens and divided into two bands. This was probably a congenital remains of the hyaloid canal. Discussed by Edward Jackson.

The regular meeting of the Colorado Ophthalmological Society was held on Saturday, November 15, 1924, in the assembly hall of the Medical Society of the City and County of Denver, Dr. D. H. Coover presiding.

W. C. Bane, Denver, showed a man aged seventy-two years who had come on account of defective vision of the left eye for the previous two months. The left vitreous was hazy, and the retina detached in the upper nasal quadrant. Discussed by Edward Jackson.

W. M. Bane, Denver, showed a youth aged nineteen years who had come with a history of the left eye having been struck with a BB shot in 1912. The shot had not penetrated the eye. Vision was nearly nil at the time of report. Discussed by F. R. Spencer, Edward Jackson, and W. H. Crisp.

W. H. Crisp, Denver, showed a girl aged eight years whose left eye had been injured by a missile, possibly roofing slate, thrown by a schoolmate. Vitreous had protruded through a small wound at the lower limbus. The eye was almost quiet, but what looked like a small granuloma protruded through the limbal wound, and there were scattered deposits of pigment around the blood vessels on the optic disc and at several points in the lower part of the fundus, as well as several areas below in which the retinal pigment seemed to have been partly absorbed. Discussed by W. C. Finnoff.

W. H. Crisp, Denver, presented a man whose left upper eyelid had been torn completely through into several pedunculated strips, as the result of an automobile collision. Fortunately it had been possible to suture the eyelid, in two layers, shortly after the injury, and for the most part the scars were almost imperceptible, and the lid margin normal in appearance. Discussed by W. C. Bane and W. C. Finnoff, emphasis being laid upon the point that such cases are usually improperly repaired by the general practitioner.

W. C. Finnoff, Denver, presented a man aged forty-five years who had come complaining of blurred vision in the right eye, of a week's duration. The case had run a very protracted course, the pathological changes including tuberculosis of the iris and choroid, with extreme opacity of the vitreous. Careful treatment with progressive doses of tuberculin (B. E.) had been accompanied by slow but steady improvement, although the optic disc was still invisible and the only artery that could be seen was the upper temporal. Discussed by G. L. Strader.

M. J. Gale, Denver, presented a girl aged fourteen years whose corrected vision was R. 20/200, L. 20/100, and in whose fundi there were numerous areas of choroidal degeneration. The case

was shown mainly to bring up the question of the standard of vision by which a child might or might not be excluded from the public schools. Discussed by Edward Jackson, E. M. Marbourg, W. A. Sedwick, and W. C. Bane, it being felt that there were probably enough such children in a city the size of Denver to warrant special provision for their education in a class distinct from children with normal vision although not upon the basis of blindness.

G. F. Libby, Denver, presented a woman aged seventy-six years who had come from St. Louis with a history of serous iritis or punctate keratitis later developing into glaucoma in each eye; iridectomy having been done on each eye on account of the rise of tension. When the patient was first seen by Dr. Libby the right eye showed a tubercle on the nasal margin of the iridectomy coloboma and one below it, and the left eye showed a tubercle on each margin of the coloboma and one below it, and a nebula in the lower half of the cornea. Rather large doses of tuberculin had been given before the patient came to Denver. Recently, pilocarpin had been continued, and during the months that the case had been under observation the tubercles had decreased in size. Discussed by Edward Jackson.

J. M. Shields, Denver, presented a woman aged thirty-five years who had never consulted a physician regarding her eyes until she came to Dr. Shields' office, although her vision had been failing rather rapidly for the last two years, and she had had many pairs of lenses from opticians. Each optic nerve head was very pale in the temporal quadrant. There was extensive pyorrhea. Discussed by W. C. Bane, E. M. Marbourg, and Edward Jackson.

G. L. Strader, Cheyenne, Wyoming, presented a man aged sixty-two years the vision of whose left eye had been failing for a year, and was now 20/70 unimproved by glasses. A large spherical, heavily pigmented sarcoma of the choroid protruded into the vitreous below and inward. Discussed by Edward Jackson.

D. A. Strickler, Denver, presented a little girl who had been shown before the society on November 18, 1923, at which time the opinion had been expressed that the left inferior oblique was over-acting. For a time prisms had relieved the tilting of the head, but recently a tenotomy of the left inferior oblique had been performed, and there was now no diplopia in any position of the eyes. Discussed by W. M. Bane and Edward Jackson.

The regular meeting of the Colorado Ophthalmological Society was held Saturday, December 20, 1924, in the assembly hall of the Medical Society of the City and County of Denver, Dr. W. C. Bane, presiding.

Edward Jackson reported for the committee on blind benefits. As bearing on the need for change in the law, he mentioned especially that the Blind Benefits Commission was not co-operating with the other organizations in the state which were interested in the welfare of the blind, namely the state institution at Colorado Springs and the workshop for the blind in Denver. The teacher for the adult blind elected by the state board acted as an independent department and made a separate report to the board of education. The Blind Benefits Commission, through the attitude of its secretary, was carrying on a sort of warfare with the school at Colorado Springs and the workshop in Denver.

G. F. Libby, Denver, presented a boy aged six

years, whose left eye had been found by school examination to have almost no vision. The fundus details were very obscure, but it was thought possible that the condition was one of an unusually large area of opaque nerve fibers, together with fetal hyaloid remains. Discussed by Edward Jackson and W. C. Bane.

W. M. Bane, Denver, showed a man who had come in for refraction, and whose eyes presented remarkably large areas of opaque nerve fibers, extending fully three-fourths of the way around the optic discs.

G. L. Strader, Cheyenne, Wyoming, presented a woman aged thirty-nine years who had come on account of gradual failure of the vision of the right eye. The right vitreous was very cloudy from dust-like opacities, and along the inferior nasal artery of the retina were several small patches of choroiditis. Discussed by G. F. Libby, E. R. Nepper, Edward Jackson, and F. R. Spencer.

C. L. La Rue, Boulder, presented a school boy, aged eleven years, who had come complaining of failure of the vision of the left eye for the past few weeks. The right eye had been rendered aphakic two years previously as the result of a penetrating injury. The left fundus showed recent and older inflammatory changes in the central chorioid and retina, and there were floaters in the vitreous. The choroidal changes were especially marked between the disc and the macular region, and in the latter, the disturbances near the disc being recent and still elevated. Discussed by D. H. Coover and Edward Jackson.

L. L. Herriman, Alamosa, presented a youth who nine weeks previously, on shooting at a padlock twenty feet away, had felt something hit his eye. There was an iris coloboma with anterior synechia, and the lens was fairly opaque. X-ray plates showed an opaque body near the median line and perhaps in the posterior wall of the eye. Discussed by F. R. Spencer, Edward Jackson, E. R. Nepper, J. A. McCaw, W. H. Crisp, and C. E. Sidwell.

W. M. Bane, Denver, presented a man aged thirty-two years whose right eye had been struck with a fragment of steel while he was using a hammer on September 10. The vision of the injured eye was of the hand as a moving object. There was a perforating wound in the margin of the right upper eyelid about 6 mm. to the nasal side of the center, and a vertical wound through the sclera 3 mm. long, located 6 mm. above the nasal margin of the cornea. By x-ray, a foreign body 1.5 by 2.5 by 3 mm. in size had been located in the orbit above and to the nasal side of the eye, and magnet examination had also demonstrated that the foreign body was not in the eyeball. The man had removed his goggles just before the accident. Discussed by C. E. Walker, W. F. Matson, G. F. Libby, and W. C. Bane.

W. H. Crisp, Denver, presented a boy aged fourteen years, who had developed interstitial keratitis of both eyes in March, 1924, one year after being placed under specific treatment for congenital lues which had hitherto produced no symptoms. In spite of several very vigorous courses of arsphenamin and of inunctions, there had been several rather severe recrudescences of the corneal condition, first in one and then in the other eye. Discussed by D. H. Coover and W. A. Sedwick.

WM. H. CRISP,
Secretary.

KIT CARSON

Regular meeting of The Kit Carson County Medical Society held at Flagler, Colo., Monday December 1st, 1924 at 10 A. M.

Meeting called to order by President Beachly. Members present, Drs. O. S. Neff and H. L. Williams of Flagler, W. C. Keller of Genoa, J. V. Beachly of Stratton, H. A. Wheeler of Cope, W. L. McBride of Seibert, and Dr. Stevens of Cope.

The following officers were elected for the year 1925: President, O. S. Neff; Vice President, W. C. Keller; Secretary and Treasurer, W. L. McBride.

After adjournment of the business meeting, members present were invited to the home of Dr. and Mrs. H. L. Williams to a farewell dinner given in honor of Dr. and Mrs. H. A. Wheeler, formerly of Cope, who were leaving for their new home in Oregon.

W. L. McBRIDE, Secretary.

LARIMER COUNTY

At the regular annual meeting of the Larimer County Medical Society the following officers were elected December 3, 1924:

President—E. L. Morrill.

Vice President—R. W. Morrish.

Secretary—V. E. Cram.

Treasurer—T. C. Taylor.

Censors—J. G. McFadden, three years; P. J. McHugh, two years; E. L. Sadler, one year.

Delegates—D. W. McCarty and D. O. Norton.

Alternates—W. B. Hardesty, J. G. McFadden, F. W. Brownell, S. A. Joslin.

MESA COUNTY

New officers of the Mesa County Society:

President, C. W. Reed, Grand Junction.

Vice-President, E. H. Munro, Grand Junction.

Secretary-Treasurer, E. H. Peterson, Grand Junction.

Delegate, G. C. Cary, Grand Junction.

New member of the society, Merrick R. Breck, La Junta.

NORTHEAST COLORADO

The Northeast Colorado Medical Society held its regular and annual meeting and banquet at the Methodist Church in Sterling, January 8. At the business meeting which preceded the banquet the following officers were elected:

President: F. A. Alcorn, Haxtan.

Vice President: J. H. Kellogg, Sterling.

Secretary-Treasurer: E. P. Hummel, Sterling.

Delegate: W. E. Hays, Sterling.

Censor: C. J. Latta, Sterling.

The society had as their guests for the evening at the banquet the druggists and dentists of the city of Sterling. Covers were laid for forty and a wonderful turkey dinner was served by the ladies of the Methodist Church.

A special feature of this meeting was the invitation to the public to meet in the auditorium of the church at 8 o'clock, at which time they were addressed by Dr. J. N. Hall of Denver on the subject of Medical Frauds and Cults. The attendance at this public meeting was good and Dr. Hall presented his subject in a very forceful and pleasing manner. Many expressions of appreciation of his address have come to the secretary and we are sure that much good was done in this community in helping people to understand and in giving them

an insight into the workings and methods of the medical crooks that are constantly preying on the gullible public.

E. P. HUMMEL,
Secretary.

PUEBLO CLINICAL AND PATHOLOGICAL SOCIETY

The regular annual business meeting of the **Pueblo Clinical and Pathological Society** was held December 19 at the Union Depot Hotel. Seven o'clock a seven course dinner. Twenty-five members were present.

There was no scientific program, but as usual the evening was taken up with the business and talks by each member.

Election of officers resulted as follows: President, Dr. F. E. Wallace; vice president, Dr. H. A. La Moure; secretary-treasurer, Dr. C. N. Caldwell; reporter, Dr. R. C. Robe.

Five members were elected to membership.

The retiring President, Dr. Joseph Snedec, gave the Annual Address, his topic being "Idealism in Medicine."

Then followed the talks by the members, which is the annual fun and frolic part of this association. From reports it was a regular "gridiron affair." Everybody roasted and toasted.

This is the only meeting of the year in which any business is conducted. The meetings are held once a month and there are four scientific clinical cases reported each meeting.

Met at the Union Depot Hotel dining room, evening of Dec. 11, 1924, for dinner and business session. This being the annual meeting the retiring president, Dr. J. F. Snedec, read a masterful paper on "Ideals in Medicine to be Attained." He dwelt on the need for intensive work which will lead ultimately to greater efficiency; on the need for a purely non-sectarian attitude in both training and practice; and a higher devotion to ethical standards.

The following officers were elected for 1925: President, F. E. Wallace; Vice President, H. A. LaMoure; Secretary-Treasurer, J. C. Caldwell; Recorder, R. C. Robe.

Drs. A. Merriman, F. A. Nicoletti, J. W. Gotthard, and G. Steinhart were elected to membership.

The secretary was instructed to write a letter to Dr. L. H. McKinnie bearing a message of sympathy and cheer and wishing for his speedy recovery.

As part of the program for each meeting a member is to be appointed to give a review of one of the newer books or a leading article in one of the late medical journals.

It was also decided to hold one out-of-town meeting during the year.

The society is endowed with the spirit of "pep" and aggressiveness and is looking forward to a most successful year of work.

R. C. ROBE,
Recorder.

ROCKY MOUNTAIN PEDIATRICS SOCIETY

The regular monthly meeting was held at the Children's Hospital on November 15, 1924. The election of officers for 1925 are as follows:

President: John W. Amessee.

Vice President: Roy P. Forbes.
Secretary: William Wiley Jones.

The following cases were presented at the December meeting:

Dr. Emanuel Friedman presented a case of hypopituitary adiposity. X-ray showed a contracted sella turcica with a very small pituitary gland.

Dr. J. W. Amessee presented a child of five years with marked mental deficiency. The child had never walked or talked and was admitted to the hospital for cleft palate operation. Operation was deferred to the future.

Dr. R. P. Forbes reported two fatal cases of intestinal influenza in children who had never been sick before. This was characterized by fever, vomiting, diarrhea and convulsions with fatal termination within forty-eight hours. Autopsy in one case revealed the clinical picture found in children with influenza in 1918. Pathological report laid special emphasis upon enlarged retroperitoneal glands.

Dr. B. Green reported an interesting case of lobar pneumonia which was followed by pneumothorax. The possibility of tuberculosis was questioned because of a definite tubercular family history.

The regular dinner of the Society was called off because of the small attendance and the inclemency of the weather.

JAMES E. RUSSELL, JR.
Secretary.

WELD COUNTY

New officers of Weld County Medical Society:

Dr. N. A. Madler, Greeley, President; Ella Mead, Greeley, Vice President; C. A. Ringle, Greeley, Secretary-Treasurer; W. F. Spaulding, Greeley, Delegate.

THE AMERICAN LARYNGOLOGICAL, RHINOLOGICAL AND OTOLOGICAL SOCIETY

On February 14th, 1925, there will be a meeting of the Mid-Western Section of the American Laryngological, Rhinological, and Otolological Society at Colorado Springs, Colorado. The meeting will be held at the Antlers Hotel. All Ear, Nose and Throat men are cordially invited. Among the men outside of the state who will present papers are Dr. H. I. Lillie of the Mayo Clinic, Dr. Fred Stauffer of Salt Lake City, Dr. W. P. Wherry of Omaha, Dr. John B. Potts of Omaha, and Dr. Henry B. Lemere of Omaha. The Mid-Western Section is composed of the states of Montana, North and South Dakota, Wyoming, Utah, Nebraska, Colorado, Kansas, Arizona and New Mexico. All of the members and visiting guests will be entertained at dinner the evening following the meeting by the Chairman, Dr. D. A. Vanderhoof of Colorado Springs.

THE PSYCHOANALYST

The psychoanalyst, with his allegories, symbolism, sublimation, incest, phantasies, bisexuality, sexual suppression, mother complexes, oedipus and electra phantasms, and all the other complex psychoanalytical instrumentalities, is an excellent example of sex obsessed, delusional dementia praecox.—Boris Sidis.

Colorado Medicine

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EDITORIAL NOTES AND COMMENT

An Air Castle

Air castles sometimes solidify. The new Colorado Psychopathic Hospital is a materialization of this kind.

Seven years ago the institution was a dream in the mind of Dr. George A. Moleen. Not content with dreams, Moleen decided to convert his reverie into brick and mortar, and he accomplished his task despite legislative obstacles.

The finished hospital is in a large measure an expression of his devotion to psychiatry.

Cosmic Causes

An English zoologist, C. S. Elton of Oxford, points out a connection between sun spots and periodic increase in animal population. Astronomical records over a period of one hundred and fifty years show that sun spots increase to a maximum at intervals of approximately eleven years. Sun spots affect vegetation, as shown by eleven years fluctuation in the rings of redwood trees that have stood for centuries. A similar effect upon animal life is suggested by an examination of the records of the Hudson Bay Company, which show eleven year variations in the turnover of rabbit skins. At first the theory sounds speculative, yet it is easy to suppose that the sun can affect vegetation and that vegetation in turn becomes a quantitative index to animal life.

The Nome Epidemic

The epidemic of diphtheria at Nome again

raises the question as to whether geographic isolation increases susceptibility to infectious disease.

A year or so ago Dr. A. J. Metcalfe, using the Schick test, made a study of the susceptibility to diphtheria of the natives of the Thursday Islands. He found that 97 per cent of children between the ages of six and fifteen were susceptible to the disease. In the United States the susceptibility at six is only 69 per cent, and at fifteen it has decreased to 27 per cent. The comparison suggests that rubbing elbows with one's fellow men may perhaps rub in immunity.

Producing Disease

A self-perpetuating disease can be produced in tobacco and tomato plants by inoculating them with the juice of healthy potato vines. The "infected" plants shortly show a mottling of the leaves, which becomes more pronounced as the "contagion" spreads from plant to plant. These facts have been demonstrated by Dr. James Johnson of the University of Wisconsin.

Since the disease is self-perpetuating, the question naturally arises as to whether a virus is not present in the potato vines from which the first inoculation is made. This seems unlikely, as the investigator used extracts from fifty different vines. Furthermore, he has tried the experiment of inoculating tobacco with the juice of forty other plants, and in no instance has there resulted any evidence of disease.

At the present juncture Dr. Johnson's experiment suggests a "chemical contagion".

Hidden Intelligence

Dr. Laird and Dr. Remmers of Colgate University have conducted a series of experiments in which intelligence of people was estimated from photographs. Their conclusions are that such estimates are inaccurate, the face apparently being no index to the mind.

The Malcontent

The University of Iowa has asked its bright and dull students to estimate the grades that they should receive in their examinations. In general the bright students forecast their grades with accuracy, while the dull students expect a much higher mark than they merit. Here, perhaps, is found an explanation of the psychology of the disgruntled citizens—the “anti,” the “red,” the I. W. W., etc. He expects more from life than he is entitled to, and resents the failure of his expectations.

Australopithecus Africanus

In Africa there has been discovered a fossil skull, which as a missing link rivals *Pithecanthropus erectus* in importance. The skull, found in limestone formation, appears to be that of a four year old child, and it presents a combination of simian and human traits. The newcomer, *Australopithecus Africanus*, has excited much interest in the biological world.

New Methods

Half of the annual prize of the American Association for the Advancement of Science has been awarded to Dr. L. R. Caldwell of Johns Hopkins University for his researches with the intestinal protozoa of white ants. The protozoa are symbiotic; when they are destroyed the ants shortly die. Destruction of the protozoa is accomplished by keeping the ants at a temperature of 95 degrees Fahrenheit for twenty-four hours, by starving them for a period, or by exposing them to air or pure oxygen under pressure. All of these procedures are fatal to the parasites, though harmless to the hosts.

The researches, though seemingly not of cardinal importance, open new fields in biological and medical methods.

The American Association for Medical Progress

In 1923 the Friends of Medical Progress were incorporated in Boston to disseminate medical knowledge among the general public and to combat anti-medical propaganda. The society has now changed its name to the American Association for Medical Progress, and has moved its headquarters to 370 Seventh avenue, New York City.

The association will be maintained by contributions from the public, many of whom may chance to be readers of *Colorado Medicine*.

A Cancer Committee

The League of Nations has appointed a Commission to Study Cancer. The commission consists of Sir George Buchanan, Chairman; Dr. Lutrerie of Italy, Dr. Jitta of the Netherlands, Professor Leon Bernard and Dr. Carriere of France.

The Annual Meeting

The next annual meeting of the Colorado State Medical Society will be held at Colorado Springs on Tuesday, Wednesday and Thursday, September 29, 30, and October 1. The first meeting of the House of Delegates will take place Monday evening, September 28.

The committee in charge of the scientific program are G. B. Webb, chairman; E. D. Downing and J. H. Brown.

The committee on local arrangements are L. H. Hill, chairman; W. A. Campbell and S. W. Schaefer.

Erratum

The pen of the stenographer is subject to many a sideslip. At the last annual meeting of the State Medical Society, a stenographic error attributed to Dr. W. W. Wasson the statement, “It is impossible to get the same clear pictures of children that we do of adults.”* The subject under discussion was x-ray examination of the chest, and “impossible” should, of course, have been “possible”. The editor unfortunately let the error pass.

In the lexicon of Dr. Wasson there is no such word as “impossible”.

**Colorado Medicine*, January, 1925, page 39.

THE ROLE OF THORACOPLASTIC SURGERY IN THE TREATMENT OF PULMONARY TUBERCULOSIS*

WILLIAM H. THEARLE, Major, Medical Corps, Fitzsimons General Hospital
DENVER, COLORADO

The various surgical procedures at present advocated in pulmonary tuberculosis are phrenicotomy, pneumolysis, cavity drainage (which are partial measures) and extrapleural thoracoplasty, which mechanically compresses one lung to a degree directly proportional to the length of rib resection, and is thus classed as a complete procedure. Any of the partial operations may alone be performed, but they are more frequently resorted to as supplementary measures, in conjunction with artificial pneumothorax or extrapleural thoracoplasty.

Resection of the phrenic nerve has been advocated to limit the diaphragmatic excursions when the lesions are primarily in the lower lobe, and to prevent aspiration from upper lobe cavities. Recently phrenicotomy has been advised to enhance the effects of pneumothorax and thoracoplasty, as well as a compensatory aid for the lung retraction of suitable chronic fibrous cases through the marked ascent of the diaphragm resulting from its paralysis.

Pneumolysis is a liberation of the lung and pleura from the chest wall by division of pleural adhesions which may be performed (a) intrapleurally by the open method, or as a closed procedure by the use of Jacobaeus' thoracoscope and cautery to sever long and slender adhesions, when few in number, that are preventing satisfactory pneumothorax compression. Pneumolysis is more often performed by (b) the extrapleural method devised by Tuffier in 1910 for apical cavitation, which he called apicolysis. Such consists in an extrapleural stripping of the lung, with both layers of the pleura from the chest wall after rib resection, usually anteriorly, and filling the space thus obtained with an autogenous fat transplant. Baer secures compression by a paraffin fill, Archibald by pedicle muscle grafts, and some advocate gauze tampons.

This operation can often be advantageously combined with extrapleural thoracoplasty to collapse large apical cavities which rib resection frequently does not fully obliterate.

Cavity drainage is of limited value but is occasionally indicated to relieve the toxemia of large apical cavities which thoracoplasty has failed to fully collapse, and similarly in exceptional cases when surgical collapse is contraindicated by extensive bilateral involvement.

Extrapleural thoracoplasty, first suggested by Brauer in 1906, but technically developed by the brilliant work of Sauerbruch, is the most frequently performed operation in pulmonary tuberculosis. Briefly, such consists in a paravertebral resection of various lengths of the first to eleventh ribs, inclusive, in one or preferably more stages; the resected rib ends are approximated by strapping one-half of the thorax until fixed by fibrous tissue and later bony union. Autopsy studies of our fatal cases have shown that the intercostal muscles of resected area are inverted or turned inward behind the approximated ribs and materially increase the lung compression in patients of large musculature.

The chest is relatively lengthened longitudinally, due to the downward drop of the anterior rib ends, but diminished in its other diameters, and the degree of lung compression with physiological rest is directly proportional to the length and number of ribs removed, which also determines the extent of chest deformity.

Sauerbruch removes short sections of eleven ribs, usually about 6 to 10 cm., and resects the lower ribs first, to lessen the respiratory action of the lower lobe in order to minimize the risks of aspiration with later compression of the extensively diseased upper lobes.

Brauer's operation is similarly performed from below upward, but larger sections of ribs are removed, especially beneath the scapulae, at least 15 cm. The high mortal-

*Read at the annual meeting of the Colorado State Medical Society, October 7, 8, 9, 1924. Published with permission of Surgeon General, U. S. A.

ity and stormy post-operative convalescence of a single stage collapse warrants its performance in exceptional cases only, and a two-stage thoracoplasty with its relatively low immediate operative mortality of about two percent (Sauerbruch) is now generally advocated.

We believe that the several stage operation, performed from above downward as recently advised by Lambert and Miller, is a distinct advance in surgical collapse, and is associated with a smoother convalescence and less dangers of aspiration than the Sauerbruch technic (except in cases where the lesions are chiefly basal), as the unrestricted action of the lower chest and diaphragm permits easier expulsion of secretions from the lower lobe.

The indications for thoracoplasty and artificial pneumothorax are practically identical, but it is an invariable rule that surgical collapse should never be done when gas compression is obtainable. Operation is indicated largely in chronic fibrous cases with chiefly unilateral involvement and with a slight, preferably arrested, lesion in the better lung, which is competent to carry on the increased respiratory function without extension of lesions, and artificial pneumothorax is impracticable because of pleural adhesions. Surgical compression is also indicated for recurrent severe pulmonary hemorrhages when pneumothorax is impossible.

The operable age limits are fifteen to forty-five years.

The ability of the better or so-called "good" lung to carry on the added respiratory function is in most cases the chief hindrance in the proper selection of cases. Brauer states that there is progression of lesions in the better lung in ten to fifteen percent of cases.

A small active lesion in either the hilus or lower lobe of the better lung is considered an absolute contraindication to operation by practically all authorities on the continent.

The condition of the cardio-vascular system is a factor in operable determinability equally important to that of the better lung, as in all cavity cases the heart muscle is af-

fected from the toxemia of cavity absorption to a degree proportional to its duration. Operative mortality in the majority is due to cardiac failure.

Thoracoplasty presents the same general contraindications as any major surgical procedure—special contraindications are tuberculosis of intestines, miliary tuberculosis, organic nephritis, amyloidosis and no attempts at artificial pneumothorax.

Pneumothorax compared with thoracoplasty is a relatively safe procedure, free from shock and deformity; compression is gradually induced, which reduces to a minimum the dangers of aspiration as well as circulatory and respiratory disturbances. Pneumothorax possesses the great advantage that the lung can be released to some degree at least if trouble develops in the better lung.

The advantages of the immediate and permanent collapse of thoracoplasty are:

(1) It obviates the long period of medical surveillance (3-5 years, Gravensen) with its frequent refills necessary in pneumothorax therapy, which is associated with serous pleural effusions of variable degree in about 50 percent of cases (Alexander), purulent exudates in 5 percent to 12 percent (McKinnie, Matson), and spontaneous pneumothorax in 3.3 percent (Matson).

(2) It produces a definite result in the poorer class, most of whom Fishberg states abandon pneumothorax refills prematurely, soon after discharge from sanatoria.

(3) Lastly is the not uncommon danger of reactivation in an expanded lung after completion of a long period of pneumothorax therapy. It is often impossible to definitely predict when tuberculosis is permanently healed, even with negative clinical symptoms, and Alexander quite aptly expresses the cessation of pneumothorax compression as frequently "a jump in the dark."

Sauerbruch says that a greater amount of fibrosis develops after surgical than gas compression and that many clinicians in a position to compare the effects of both methods consider the results of thoracoplasty better and more lasting than pneumothorax.

Brauer maintains that the maximum collapse obtainable surgically is only 75 percent of a complete pneumothorax, but for all clinical purposes thoracoplasty can produce any degree of lung collapse that is accomplished by gas therapy.

Alexander, in his recent most complete analysis and critical review of modern compression therapy of the world's literature for past six years, states that number of patients whose pulmonary disease is sufficiently unilateral to warrant compression of one lung, is variously estimated from 2 percent to 10 percent, and he conservatively estimates that at present there are in this country 15,000 persons with pulmonary tuberculosis for whom surgical interference is indicated.

Preoperative measures do not differ from those required for major surgical procedures, except it is most important that the patient empty secretions from cavities immediately before operation by assuming the posture that best facilitates drainage from the diseased lung, which reduces to a minimum the chances of aspiration.

The choice of anesthetic varies in different countries. Regional and local anesthesia is used more often than general in central Europe, but Sauerbruch prefers straight ether when the sputum does not exceed 30 c.c. a day. Elsewhere on the continent ether, chloroform or a mixture of the two are used, whereas in America gas-oxygen is preferred, although frequently combined with local analgesia. Our cases have all been operated under local and regional anesthesia with a single exception.

European workers claim that general anesthesia per se has no unfavorable action on the lungs. The loss of cough reflex, though incident to narcosis, prevents the patient from coughing out material necessarily expressed from cavities as they are collapsed during operation, and thus increases the risks of aspiration.

Operation

Our operative mortality has been entirely in one-stage collapses, and our limited experience is fully in accord with the two or more stage thoracoplasty as now generally advocated. A two-stage Sauerbruch proce-

dure (with two to three weeks between stages) will fulfill the requirements in a majority of cases, but for extensive involvements a several stage Brauer collapse will be necessary. Either procedure can frequently be supplemented to advantage with an apicolysis as previously stated, while phrenicotomy is recently gaining in favor preliminary to thoracoplasty.

Results

Surgical collapse has been performed on 27 patients during past two years, 9 of whom had an associated pyopneumothorax. A single stage collapse was done in 10 cases; the left lung was chiefly involved in 14.

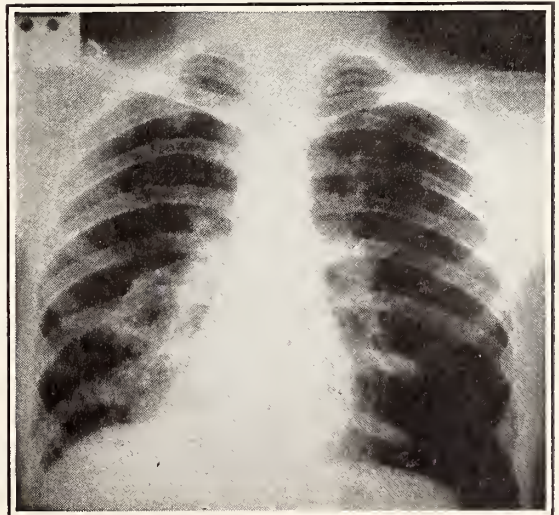
Cases	
Disease apparently arrested.....	7
Improved	11
Unimproved	4
Died	5

Alexander gives following statistics of 1,024 thoracoplasties reported in literature, mostly of surgeons on continent: 32 percent cures, 26 percent improved, 12 percent mortality first month, (2 percent of which was immediate operative) and 19 percent thereafter, mostly from tuberculous extension.

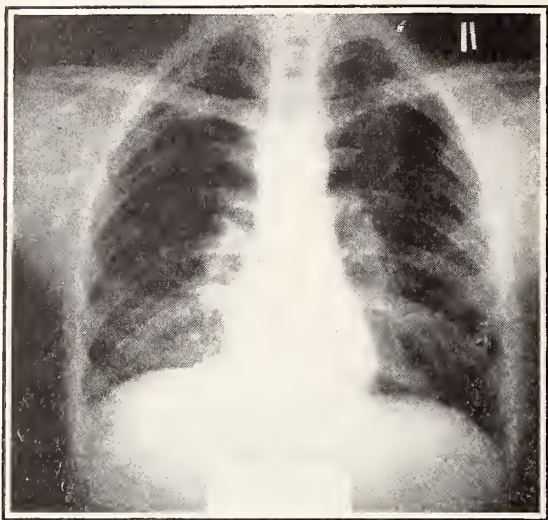
Sauerbruch's figures in over 500 cases are 35 percent cures, 40 percent improved, and 12 percent mortality (2 percent of which was operative).

Case Reports

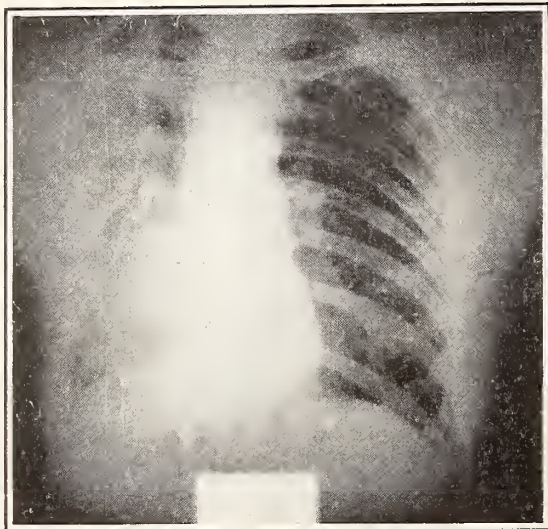
Roentgenographic studies of the following cases illustrate the various types and procedures of this small series:



Case I—With cavity right lower lobe, and basal lesions.



Case I—7 weeks later, showing increase in size of cavity and lesions base right lung.

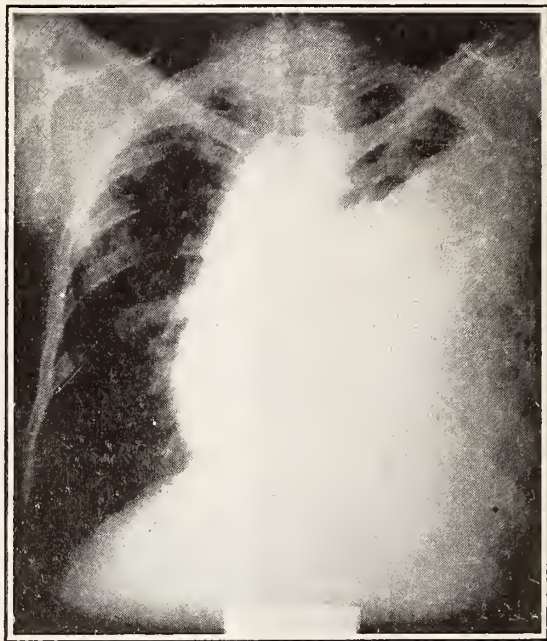


Case I—Three months after operation. Cavity obliterated.

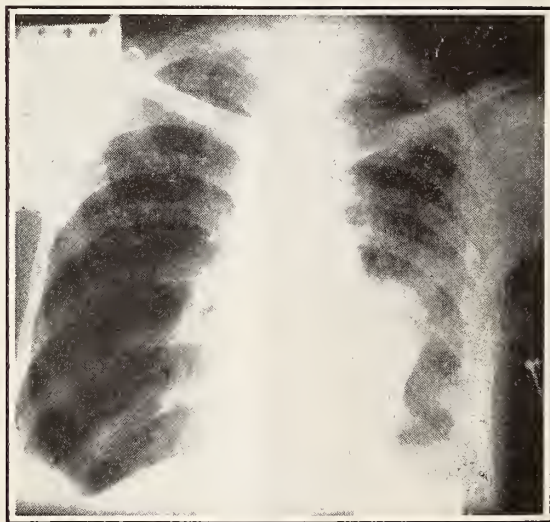
Case I. Adult male, age 27, TBC. followed flu 1918, lung involvement chronic active lesions all lobes right (upper lobe slight) and small cavity apex right lower lobe opposite seventh and eighth ribs with aspirational TB. broncho-pneumonia below cavity. Slight sputum. Cavity with lesions right lower lobe progressive. March 17, 1924, paravertebral resection $3\frac{1}{2}$ inches of fourth to tenth ribs. Cavity obliterated, no cough or sputum. Disease apparently arrested.

Case II. Male, age 33, four year TBC. complicated with left pyopneumothorax. Spontaneous pneumothorax, October, 1922. Also TB. left ankle. Poor condition, quite toxic, with considerable dyspnoea and

cough; sputum two cups day, which increased to four cups October to December, 1922. Lungs: Active lesions all lobes left and upper right, inactive right middle and lower; small cavity left upper and fluid in

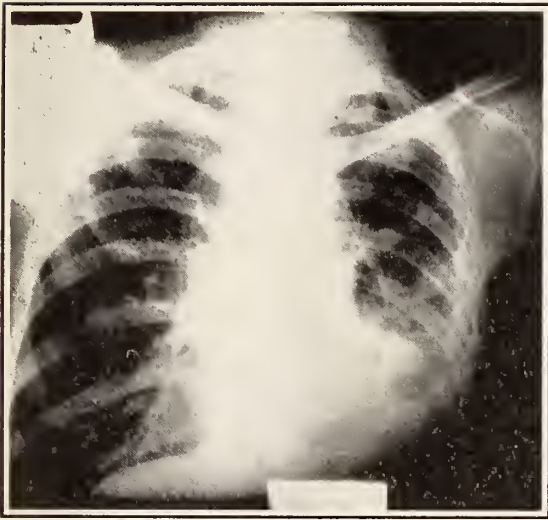


Case II—Four months after spontaneous pneumothorax showing fluid level at 4th rib, posteriorly.

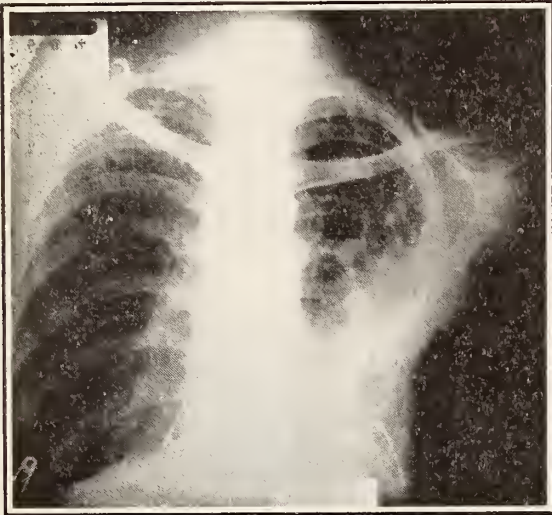


Case II—Ten weeks later, after removal pus left pleura, by Thoracotomy.

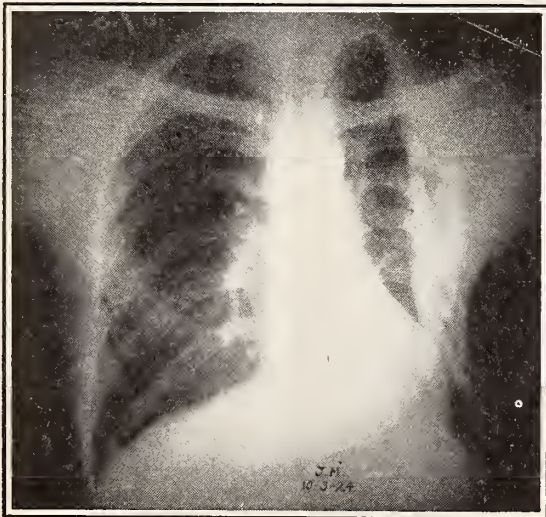
left pleura to fourth rib. Thoracotomy with drainage March, 1923. Two-stage left paravertebral thoracoplasty July and December, 1923, 4 inches to 5 inches resection of second to eleventh ribs, resection of first rib prevented in second stage by patient's condition. Left pleural space obliterated, left



Case II—Two months later, showing some re-expansion upper portion of left lung.



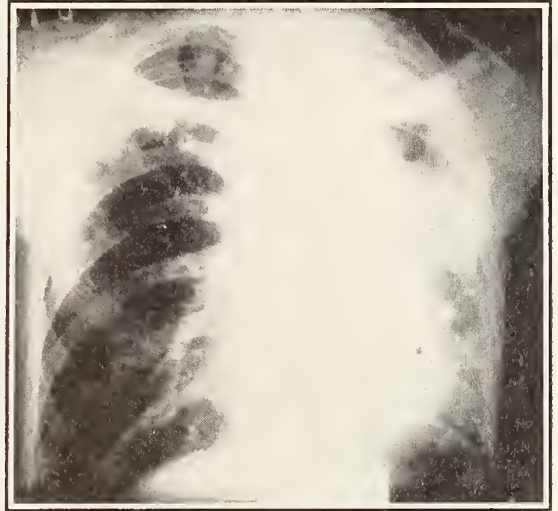
Case II—Four months later, after 1st stage Thoracoplasty. Shows importance of removal upper lobes to secure satisfactory lung compression.



Case II—After completion 2nd stage collapse. Pleural cavity obliterated. Partial expansion lung.

lung partially expanded. Improvement marked. Patient now ambulatory, free from cough and sputum. Disease apparently arrested.

Case III. Male, age 36, nine years TBC. Markedly improved by two years pneumothorax therapy (1916 to 1918); in 1921 extension of lesions, pneumothorax impossible



Case III—With extensive cavitation left lung.



Case III—Five months after operation.

because of adhesions. Lungs: Active lesions all lobe left with multiple cavitation and slight scattered activity right lung, associated with great deal of fibrosis. Heart displaced to left one inch by adhesions. Sputum one cup day. Patient febrile and very toxic. January 18, 1924, one-stage left Brauer thoracoplasty, 4 inches of the second and eleventh and 6 inches each of third to tenth ribs resected paravertebrally. Left



Cases I, II, and III, (from right to left), after operation.



Cases I, II, and III, (from right to left), after operation.

lung well collapsed, cavities obliterated and cardiac displacement corrected; occasional cough with scant sputum; lesions apparently arrested.

Addendum: Since this paper was read, we have reversed our favorable opinion of primary upper lobe collapse as advised by Lambert and Miller, as the only four cases we have operated by this technic have developed lower lobe activity or aspiration with more extended observation. We therefore believe that surgical collapse should always be performed from below upward as so strongly advised by Sauerbruch.

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DISCUSSION

Arnold Taussig, Denver: Dr. Thearle is certainly to be complimented in bringing this subject before us. All of us who have been doing pneumothorax in the last decade have had remarkable results except in a few cases. For these cases we have looked forward to the development of thoracoplasty to solve our problem. In the last year there has been more literature on thoracoplasty from Great Britain, Germany and the United States than in the five years preceding. All of the surgeons who have operated have given results that certainly make us feel that in the next ten years thoracoplasty will be demanded by the patient, as pneumothorax is being demanded today. Some four years ago when I was in Washington, I had the great pleasure of visiting the Walter Reid Hospital, where Major Keller was working. When we went through the wards, one of the men who was showing us around, made this very significant remark: "We do not ask these men who have been operated eight or ten times

for their empyemas to be operated upon. We simply put them in the ward with the patients who have already been operated upon and that settles it. They demand operation." It is so now in our institutions with pneumothorax. We do not have to go down on our knees and beg our patients to be operated on for pneumothorax. They beg us; and I predict that in the next ten years that will be the case with thoracoplasty. Major Thearle said nothing about the indications. He did not have time; but I must say that upon the internists comes the responsibility of deciding when these cases should be operated upon, and if the internist accepts his responsibility and chooses the right kind of cases, we will get results that will certainly be as startling as the results that we have had in pneumothorax. I may say briefly that when there are overwhelming symptoms, such as hemorrhage and fever, when pneumothorax cannot be performed, we are derelict in not advising thoracoplasty. When we have patients upon whom pneumothorax can be performed, we have annoying symptoms that interfere definitely with their ability to carry on their occupation, that will make them paupers in years to come, certainly we should advise thoracoplasty. In another group of cases where the patient is very impatient, where he gets to the point where he says, "Doctor, I would rather die than continue this fight," if it is a one-sided case, and pneumothorax has been tried or has failed, certainly in that case we should advise thoracoplasty. I wish to thank Major Thearle for the paper he has presented, and the very remarkable results that he has obtained. He has not the choice of cases, he cannot get the kind of cases that he would like to get; but when the internist learns to advise this operation at the proper time, we will have less than 17 per cent mortality.

G. B. Gilbert, Colorado Springs: Dr. Thearle has given us an excellent resume of this treatment, and shown some very fine results. These results are much better than those I have been accustomed to see in Colorado Springs. Our cases have all been done by the one stage method; which often produces considerable shock and intense pain, sometimes for weeks. All too frequently no adequate collapse has been obtained. This is especially true of cavities in the upper lobe. Although it is somewhat difficult to resect the first rib, we believe this is absolutely essential for success in most cases. Failure to do this has allowed symptoms of hemorrhage, cough and expectoration to remain unchanged and made benefit from the operation nil. I believe most of us are now convinced that the multiple stage operation is preferable in tuberculous, as well as non-tuberculous cases. This operation should not be done on forlorn, hopeless cases. The mortality is too high, and the chances of a satisfactory result are too few. Those who receive this treatment should be told the truth about the suffering which they may be required to go through, particularly if the one stage operation is done. They must have a great desire and a keen determination to live, if they would weather the operative storm.

Major Thearle (closing): I have not very much to say in closing, except that in the one stage operation there is not so much pain. Patients are, however, sick after one stage operations for several days, and often times a week, but it is entirely a cardiac affair with the majority. The expectoration begins after 36 hours; they usually cough and bring up lots more than before they were operated because of the physical

reaction in the lung. This increased expectoration goes on for a couple of weeks, and then begins to diminish, but with a change in the character of sputum; it becomes quite tenacious, and is expectorated with difficulty. We usually strap half the chest tightly for six or eight weeks. It, as one of the doctors stated, the cases are undertaken early, when they are in much better con-

dition, they stand the operation much better and recover quicker; they can thus get up on their feet in two or three weeks, at which time you can complete the second stage. It is remarkable after one gets on to what to do and what not to do in this work, how much smoother the convalescence of these cases is and how much one can really accomplish by surgery in pulmonary tuberculosis.

HELIOOTHERAPY IN THE TREATMENT OF TUBERCULOUS LARYNGITIS*

A. M. FORSTER, M.D., and S. J. CHAPMAN, M.D.

COLORADO SPRINGS, COLORADO

One of the nice things about the Colorado State Society is the interest which members are willing to show on the subject of tuberculosis. We are usually accustomed to being placed last on the list at the general meetings which we attend, and I think we all ought to be extremely flattered this afternoon by the fact that at the close of the session we have such a splendid representation to listen to our discussion of this subject of tuberculosis. We clinicians possibly sometimes feel that very little progress has been made in the treatment of tuberculosis. Certainly, this cannot apply to the subject of this complex tuberculous laryngitis. I think all of us here can remember that some fifteen years ago tuberculosis laryngitis was almost universally looked upon as a hopeless complication of pulmonary tuberculosis. When I first came to Colorado I had worked on tuberculosis in the East, and I was accustomed to call on the throat specialists for some help with patients who developed this complication, and universally a hopeless prognosis was made and practically nothing was ever done for the patient. That situation did not exist here, because not only in Denver but in Colorado Springs the laryngologists at that time were doing a great deal for tuberculous laryngitis, and I very soon learned that in many instances their efforts were successful. It was not long after coming out here that we had a patient who had been under treatment in Switzerland, who had been taught to use an ordinary hand mirror laryngoscope for reflecting sun light in his larynx, and he

claimed that he got distinctive symptoms, and certainly the result in his case was encouraging. As a result of this example, with the help of another of our patients who had considerable mechanical genius, we began to work on the elaboration of an instrument for reflecting the sunlight direct upon the lesions in the larynx. We very soon learned that glass was supposed to absorb actinic rays, and also that the rays were supposed to have the most influence on the lesions. As a consequence, with the help of various professors of physics and chemistry with whom we corresponded, we used an alloy of aluminum and magnesium, and elaborated a mirror which I wish to present to you. This alloy is supposed to absorb considerable heat rays and to reflect the greatest amount of the actinic rays. The apparatus consists of a standard, which is fastened to the back of a chair, or to a stand, which has two mirrors, one, as I say, made of an alloy of aluminum and magnesium, and another a simple glass mirror in which the patient sees just where he is directing the ray. This mirror, this alloy mirror, catches the ray from the spot and throws it in the pharynx. The patient then uses this small laryngoscope, which is made of the same metal, this alloy, and placing it in the back of the pharynx reflects the ray directly upon his lesions in the larynx. Considerable adjustment is necessary at first until the patient learns the technique, and very often, unless the thing is done under the supervision of the physician, or of some patient who has already been trained in the technique, the patient is apt to become discouraged, and sometimes even willing to

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abandon the treatment entirely. We feel it necessary to emphasize the fact that these mirrors should not be used except under the supervision of the physician. The man who helped us elaborate the apparatus was a poor patient and he needed the help that he has derived from their sale. We got him to patent it, and possibly in the distribution of his literature he has been a little inclined to overemphasize the benefit derived from the use of the mirror, and consequently we have felt it necessary to emphasize the fact that, of course, heliotherapy, as you no doubt will be told later, is a two-edged sword and that it is a dangerous thing to place one of these machines in the hands of a patient for his use without proper supervision. We found very shortly after we had worked on this apparatus that there was considerable interest abroad in the question of heliotherapy and the treatment of tubercular laryngitis, and we found by looking over the literature that there are some five or six different machines of this sort that have been used in Europe. It is rather curious, with our mechanical bent in America, that more of this sort of thing has not been done here, but a review of the literature shows a much more widespread interest in the subject of heliotherapy directed to the larynx abroad than has so far been shown in this country. However, this apparatus is now in general use to a remarkable extent. I think this patient of ours has sold more than 1,000 instruments, and we have had reports from various parts of the country which have been distinctly encouraging.

Of course, the early subject of heliotherapy is still in fact in an unknown state, and so little actual clear-cut knowledge do we possess in regard to the effect of heliotherapy or its technique, that one necessarily must hesitate before speaking too positively in regard to this particular phase of the subject. But it is pretty generally admitted that the direct effect of heliotherapy only occurs where we have a surface lesion. Tuberculosis of the larynx is peculiarly a surface lesion, and necessarily it must be so because we have the frame work of cartilage covered with a comparatively thin membrane, and consequently these lesions are to

a larger extent than almost in any other form of tuberculosis, a surface condition; consequently if we can get the sunlight, the various rays contained in the sunlight, or any other light that we wish to apply direct to this lesion, if there is any virtue in heliotherapy, any direct virtue, why then we certainly should get it in tuberculosis of the larynx. Now, of course, we do not presume for a moment to say that this is the only measure that should be used in the treatment of tuberculosis of the larynx, nor do we feel at all that it should be applied in cases that are so serious that the efforts necessary for its use will do harm. It is true that in some cases, with the help either of the nurse or of an attendant, or the doctor, we may apply the treatment in patients who are desperately ill, but as a rule we advise its use only in those cases which are able to stand the effort that is required for its application. It is surprising how the patient's interest is aroused, and how, if he has some help and encouragement from the doctor, he quickly acquires the technique, and how thoroughly adept in the application of the treatment he becomes. Not only does he himself learn to look at his lesion and treat it, as the doctor does, but also he gains such a complete control of his pharyngeal muscles that an examination of his larynx, or the application of any other treatment that is indicated, can be done with the greatest facility. We all sometimes feel that it would be helpful if we could show the patient his lungs. If every patient could visualize the condition of his lungs, I am sure we would get much more cooperation in the treatment. That is exactly what the patient does with his larynx. He has just as clear a view of it, and necessarily must have, in order to apply the heliotherapy as the specialist does who examines him, and the morale that you get in these laryngitis cases is perfectly amazing, and the cooperation that they show is in our experience very remarkable, and possibly that may be one of the factors in the benefits that are derived. Nevertheless, we do feel from ten years' experience that heliotherapy does have a certain effect in the cure of the diseased lesions. Of course, as

I said before, we must remember to carry out all the other forms of treatment that have been recognized as of value by trained laryngologists. It goes without saying that the very first thing we do is to put the patient on absolute silence; and when we have the patient watch his lesions and see the fluctuation that goes on from time to time up and down in the tuberculous lesions, as I said before he is more willing to cooperate, and our patients who use this apparatus submit more willingly to this discipline of voice rest. There has been in recent years a tendency away from local applications in the larynx. It is our feeling that local applications in the larynx if carefully done are of benefit, and I simply mention in passing that in addition to the use of this apparatus, we in a number of our cases use local applications, particularly solutions of formalin. We also have an intratracheal injection which we use, and we feel that this particular application is of distinct value. We use other things also, of course, but the use of absolute voice rest, and the use of whatever applications are considered advisable in particular cases, plus the use of these mirrors, we feel offer to our patients the best possible form of treatment. Of course, we believe also that the general treatment, particularly as carried out in the sanatorium, is very important all the time. We use general heliotherapy as well as locally in the larynx. The observers abroad have had various ideas in regard to the application of heliotherapy to the larynx. Some have advocated its use externally. Some have used various rays of sunlight; but there is some difference of opinion in this country in regard to the importance of either sunlight or artificial sunlight lamps.

DISCUSSION

F. R. Spencer, Boulder: Unfortunately, I did not have an opportunity to see Dr. Forster's paper or to read it before coming here today. I have written out some of our experiences in the use of heliotherapy in the treatment of tuberculosis, because if I did not write them out I would be apt to forget to mention one or two points.

There are several very distinct advantages of heliotherapy as follows:

1. This method of treatment can be used by most patients, after a little instruction, without the help of a physician or nurse. It is, therefore,

almost akin to occupational therapy and is a diversion.

2. It is much less expensive than some of the other methods of treatment, which, from a patient's standpoint, is very desirable, especially when treatment of different kinds must be carried out over a period of months or years. However, this method of treatment should not be used to the exclusion of vocal rest, the electric cautery, lactic acid, etc., as the authors have mentioned. We are using heliotherapy as it is used at Cragmoor Sanatorium.

3. It can be used by the internist, or by the family physician, who is not always expert in other methods of laryngeal treatment.

The disadvantages of heliotherapy are as follows:

1. Patients with their natural eagerness or desire for a quick cure are apt to expose the larynx to the sun's rays too often and for too long a time with the result that the laryngeal and pharyngeal mucosa are sunburned.

2. Personally I have not seen any benefit from heliotherapy in late cases of laryngeal tuberculosis, but this criticism also applies to most of the other methods of treatment for advanced laryngeal involvement. In early cases with slight involvement it is excellent.

We have under treatment at the present time a married woman, aged 30, referred by Dr. O. M. Gilbert, December 4, 1923, with the following history:

Complaints of hoarseness which began about one year ago and which has gradually increased. Came to Colorado a few months ago on account of pulmonary tuberculosis. Examination of the larynx revealed an infiltrated posterior laryngeal wall with some hypertrophy of the arytenoids and of the interarytenoid space. She has been using heliotherapy for the larynx for several months past with very gratifying results. At the present time the larynx shows more redness than a normal larynx, but no evidence of infiltration or hypertrophy. If she continues to improve as she has in every way, we believe she will entirely recover from the pulmonary and laryngeal tuberculosis.

I. D. Bronfin, Denver: I feel that any one who is called upon to treat these cases, and has seen the suffering which exists, will be very grateful to the Colorado Springs group for having brought into active practice this method of heliotherapy, local heliotherapy. We have had some very gratifying experiences with local heliotherapy. I will pass around two chest plates. It is recognized that tuberculosis involving the epiglottis gives a bad prognosis. About seven or eight months ago a patient was admitted to our institution, and physical examination of the lungs did not reveal as much as the x-ray, which is not unusual; but I will pass around the plate and those who are interested can see the extensive amount of pulmonary involvement. One plate was taken in February, 1924 and the second plate in July, 1924. The reason I show these plates is that, although the patient has made general improvement, the pulmonary condition has remained stationary. An examination on admission showed a very extensively ulcerated epiglottis with considerable ulceration of the other laryngeal structures. We started him on local heliotherapy. The man has gained sixteen pounds, and only this morning a laryngologist who saw him several months ago said that the epiglottis has completely healed, and there is no active trouble in the larynx. I feel this therapy should be tried in every case with active laryngeal tuberculosis. I am in accord with

Dr. Forster's opinion that where the sun can reach a surface lesion in tuberculosis, it has marked beneficial effects.

C. E. Edson, Denver: The excellent results which have been obtained from the direct application of sunlight to the tuberculous larynx are beyond question. One great advantage of its use I think comes from its help in holding down the very early cases. The first symptoms of a beginning tuberculosis involvement in the larynx with a patient with pulmonary tuberculosis, is a little huskiness, a little fatigue, on the use of the voice. When one examines the larynx he will find that there is the slightest infiltration. The patient has no pain in the larynx. The fatigue on use is exactly comparable to the limp of a child with hip disease. The fatigue comes before the pain. In those cases, you should put that larynx at rest. The use of the larynx, and the voice, if you will remember your anatomy and physiology, is a joint function of the arytenoids. Those very early cases of huskiness will in a large percentage of cases recover if you can put them on absolute silence, absolute immobility, as you would a hip in hip disease. But the discomfort is so slight, the huskiness is so slight, that the patient is unwilling to come down to a very rigid and prolonged treatment.

Now, with heliotherapy, you can train the patients to do this. You are doing something that will convince them that there is a process starting in the larynx sufficient to demand thorough and adequate treatment, and I think in those very early cases, even those which we feel may need it, if they would keep quiet, it is a factor which would convince them that that is necessary. For at least twenty or thirty minutes a day they cannot talk and that is more rest than you can get out of them otherwise.

Dr. Forster (closing). The question of the supervision of the physician, as I said, we wanted to emphasize, because we found sometimes a tendency on the part of patients to the overuse of this apparatus. Most patients feel that if a little is good, a whole lot is better, and undoubtedly you can get some severe sunburn where

the thing is not carefully supervised. We feel that the physician, the general tuberculosis man, ought to familiarize himself with the use of the laryngoscope. It is not used at all to encroach upon the specialists, because we believe firmly that tuberculous laryngitis is a specialty, but we feel that the general man would help the laryngologist very materially if he would examine these cases with the laryngoscope, and we could make our diagnoses earlier.

We submitted this apparatus last Spring to the Bureau of Standards in Washington. We were not certain as to whether we had the best alloy, and as to whether the mirror was doing what we supposed it was and had been told it was, that is, reflecting the actinic rays. Their experiments proved that unquestionably we got a considerable amount of the actinic ray. We were surprised at their report to find that we got more heat rays than we supposed were reflected by this alloy, and they recommended that we use a quartz filter to take out the heat rays. We tried it on several occasions, but from our own observation and from the reports of the patients we reached the conclusion that no better effect was obtained with the filter. It is quite possible that the heat rays have some beneficial effect, as well as the actinic ray. That is our clinical observation, and consequently we are not attempting to use this addition which was suggested by the Bureau of Standards. Aside from several suggestions in regard to improvement in the technique and manufacture, nothing else was recommended as a result of this investigation. We insist on absolute voice rest. We feel that whispering does call into play considerable muscular effort, and consequently we insist to a remarkable degree, and we get the co-operation of the patient in writing every communication he has to make. The advantage to the physician, of course, in the training that the patient gets in the control of his laryngeal muscles, I spoke of before. It is rather interesting to see the x-ray that Dr. Bronfin has shown us. He has the feeling, and we have seen it mentioned in the literature, that very frequently, with the acquisition of the laryngeal lesion, we find a quiescent pulmonary lesion.

POST-OPERATIVE ILEUS*

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DENVER, COLORADO

The object of this paper is to bring forward the subject of post-operative ileus, discussing the etiology, symptomatology and diagnosis, and illustrating by case reports, the treatment in each type.

Probably no single complication or sequel following a surgical operation is to be more dreaded or more urgently demands early recognition and prompt relief than intestinal obstruction. Occurring post-operative, ileus is, in fact, one of the most fatal surgical conditions we are called on to face.

The operative mortality of acute obstruc-

tion of the bowel of any cause is generally held to be somewhere between forty and fifty percent in a series of cases. There is no doubt that there has been a great deal of improvement of recent years in the matter of early diagnosis of abdominal lesions, aided by the clinical and x-ray laboratory, and consequently early and better treatment, but intestinal obstruction and especially post-operative cases still have a high mortality which is due to delay in proper treatment causing dehydration, starvation and sepsis, as well as to the very vital character of the organs concerned.

There are in these cases of post-operative

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ileus two factors present which materially diminish the chances of success: one is an unhealed wound in a weakened and worn out patient recently having undergone a serious or possibly life-saving operation, or in later cases extensive adhesions which often include most of the viscera in and around the area of the incision; the other is a patient who is septic, dehydrated, and starved.

Etiology

Post-operative ileus is always the result of obstruction with or without paralysis of a larger or smaller portion of the intestine. The cases of post-operative ileus without paralysis are represented by the mechanic post-operative ileus due to (1) adhesive bands, (2) cicatricial contractions, (3) circumscribed collections of pus of long standing.

The cases of post-operative ileus with paralysis are divided into the following classes as to causes: (1) Secondary to operation on mesentery, (2) prolonged strangulation, (a) pinching of intestine as in a hernia, (b) duodenal obstruction following gastro-enterostomy, (3) spinal, (4) afferent nerve lesion, (5) reflex, (a) hepatic calculus, (b) renal calculus, (c) ovarian compression, (d) strangulated omentum, (6) septic, (a) local peritonitis, (b) general peritonitis, (c) embolism, (d) thrombo-phlebitis (7) uremic.

Symptoms.

The symptoms of post-operative ileus vary according to the causation in each case. However, the cardinal symptoms of all post-operative ileus cases which are almost invariably present from the beginning are vomiting, constipation or obstipation, and severe abdominal pain. The later symptoms are meteorism, hippocratic facies, visible peristalsis, palpable mass, rapid pulse, shock and collapse. The symptoms may begin suddenly without previous warning or may have been preceded by a long train of other symptoms or by more or less recent operation.

Vomiting is one of the earliest, most common, and most persistent of the symptoms. In the beginning it is of the reflex type, due to pylorospasm, the spasm being an effort on the part of nature to prevent any more material from reaching and distending the

obstructed area. The vomiting is not relieved by lavage. In high obstruction it may occur immediately after the ingestion of solids or liquids. In low obstruction it occurs later, after the food has begun to approach the obstructed area.

In from two to four days the pylorospasm ceases as a protective measure and reverse peristalsis in the small intestine, probably all the way to the ileocecal valve, and later actually to the point of obstruction, occurs. The vomiting at first is food contents, later bile-stained mucus, and then it becomes darker in color until fecal in character. By the time the vomitus has become fecal the patient's condition is usually such that even skillful treatment will result in high mortality.

The constipation at first may be an unobstructive symptom. The patient may even remember a good evacuation from twelve to twenty-four hours, before, although frequently there is a history of no bowel movement for several days, with various measures taken to relieve the constipation. Enemas, which in the beginning may have returned colored, later become only slightly tinged and still later return clear. No flatus is expelled from the very beginning. If the obstruction is in the lower portion of the large bowel only a very small amount of fluid by enema will be held by the rectum at one time (a pint or even less) whereas in high obstruction (small intestine) enemas may pass easily into the whole colon and may for a day or two show some fecal return. When necrosis of the bowel sets in blood may be detected in the return flow.

The abdominal pain is an early and prominent symptom although it may vary in its severity. It is usually "cramplike" in character, occurs all over the abdomen especially around the navel. The severe paroxysms of pain are accompanied by vomiting (reflex) which however brings only momentary relief as in a few minutes another paroxysm occurs. The pain, which is due to violent peristaltic contractions of the intestine above the obstruction, in an effort to force the contents past the point of occlusion, is exaggerated at once by food and cathartics and not

relieved by enemas. It is usually worse in the first few days of the obstruction, becoming gradually less severe as the intestinal musculature becomes tired out, although occasional violent spasms may occur even late in the disease. This peristaltic pain so characteristic of obstruction is later followed by the dull pain of distention or the very intense constricting pain of strangulation, when the patient is moribund and his chances of recovery are slight.

Meteorism is one of the later symptoms observed. It is due to the rapid formation of gas in the lumen of the intestines. This condition formerly was assumed to be due to the accumulations, dependent on the simple fact that the bowel was blocked. Experimental work done along this line brought out the fact that the pathology of meteorism varies with the type of obstruction. The results of experiments by Murphy and Kader, working independently, show that when obstruction of the bowel is associated with marked interference with the blood supply of the mesentery going into the strangulated loop the formation of gas develops much more rapidly than in cases in which the bowel wall alone is pinched, without strangulation of the blood supply.

Hippocratic facies accompanied by the other classical signs such as tympany, visible peristalsis, palpable mass, rapid pulse, shock and collapse are seldom seen in the early stages of obstruction. These late signs signify that toxic absorption is taking place or that strangulation with necrosis of bowel wall, or peritonitis have occurred. Visible peristalsis, while a valuable diagnostic finding, is of rare occurrence, and is apt to be late in the disease. Shock is rare at the onset of obstruction and usually is an indication that complications such as strangulation, perforation, or peritonitis have been added to the already existing toxic absorption. Rapid, feeble pulse and the general symptoms of collapse are late symptoms and give evidence of strangulation, gangrene or peritonitis.

A palpable mass may occasionally be observed earlier in the disease as the abdomen is not usually rigid or distended until complications have developed.

Diagnosis.

The diagnosis of post-operative ileus is naturally of the utmost importance, for when it is finally determined there is but one rational method of treatment. The symptom-complex is by no means always clear, and often a diagnosis is difficult in the first few days of the disease. Those cases should be carefully watched in which there appears following an operation in the first few days persistent vomiting, abdominal pain, inability to get a bowel movement, accompanied with retention of flatulence, then after twelve to twenty-four hours there appears, more or less severe, more or less pronounced tympanites, slight elevation of temperature, quickening of pulse with leucocytosis. For this is a clinical picture of post-operative ileus. It is in this stage that the most good may be done when the condition is recognized. If the symptoms above mentioned occur after the third day of operation they are very suggestive of obstruction, but when observed in the first few days following operation they are of much less aid in the differential diagnosis; when the resort to the usual therapeutic measure is followed by the passage of feces and gas and relief of symptoms are marked they should be classed as cases of probable intestinal paralysis or pseudo-post-operative ileus.

Laboratory

The laboratory findings, especially in the acute post-operative ileus cases are usually and correctly confined to the more simple procedures, as the importance of early relief makes prolonged investigations undesirable. Examination of the blood will show a leucocytosis, moderate at first, and very marked ranging from thirty to forty thousand in the later stages, when complications have usually developed.

Drs. Orr and Haden working in the laboratory of the University of Kansas on the blood chemistry have demonstrated that there is a very marked rise in the non-protein nitrogen in the blood, and in the urine; and that there is also an almost complete absence of the chlorides in the urine and a marked drop of the chlorides in the blood.

Examination of the vomitus may be dif-

ferentiated from that of normal post-operative vomiting and from that of pyloric stenosis by the fact that the gastric contents contain no food eaten at a remote period, that is, more than six or eight hours before.

Treatment

The treatment of post-operative ileus depends on the type of obstruction. In the mechanic ileus without the paralysis of the bowel with its accompanying shock, toxemia, dehydration and starvation, the treatment is early operation.

In the septic cases with paralysis and the above factors present the treatment is first to combat the shock and toxemia with its attending dehydration and starvation, by means of (1) gastric lavage, followed by the duodenal tube as advised by Brown, (2) continuous proctoclysis of a 2 percent soda and 5 percent glucose (Murphy method), (3) hypodermoclysis of a 3 percent salt solution as suggested by Orr and Hayden, (4) intravenous administration of a normal salt solution daily. The above treatment is continued until the patient's resistance will allow an enterostomy or colostomy above the point of obstruction, done under local or nitrous oxide anesthesia.

The writer wishes to emphasize the importance of refraining from extensive operations. The ideal procedure, in a patient so weakened by toxemia as in the average post-operative ileus with paralysis, is to do a simple drainage operation. The more extensive operations which may be indicated can be done later with greater safety to the patient. For often the temptation to do a complete job at the one sitting results in death, where life might have been saved by the above simple methods. It is not within the scope of this paper to discuss the methods of operation; the general treatment will be alluded to in the case reports.

Case Reports

The following case illustrates most of the points in post-operative mechanic ileus, i. e. obstruction without paralysis, in an individual, who had been operated on many years ago.

Miss W. C., aged 25, gave this history: Seven years previously she was operated for appendicitis. At operation it was found

that the appendix was ruptured and there was generalized peritonitis. Six months later she was again operated and a localized abscess in the iliocecal region was drained.

Present illness: The patient was first seen with the following history and examination: She was seized suddenly that morning with pain in the abdomen. The pain was not severe. She had had a normal bowel movement the previous day. She attended to her regular duties. That evening the pain which was accompanied by nausea and vomiting became more severe and she was compelled to go to bed. Upon examination three hours later there was slight tenderness over the right side of the abdomen, no distention, no tympanites, no palpable mass, temperature 98, pulse 86, respiration 22. A ventral hernia which admitted the end of the little finger was present in the old wide scar.

An enema, which was repeated in an hour, was given. The first enema returned highly colored, the second one much less colored. No flatus was expelled at either time. The patient was seen again the following morning. She was much improved but was advised to remain in bed and an enema given every four hours. That evening, approximately thirty-six hours from the onset, she was seen again. At this time the patient presented a totally different picture. She was in extreme pain, the vomiting was persistent and bile-stained, there was some distention in the central portion of the abdomen, but there was no tympanites. An enema at this time returned clear, no flatus was expelled. A laparotomy revealed an obstruction of the bowel at the iliocecal region caused by adhesions and multiple circumscribed collections of pus and calcified masses. There was a complex entanglement of adhesions involving intestines, bladder, and omentum, the entire mass being adherent to the abdominal scar. There was free pus in the abdominal cavity due to the rupture of an abscess. The operation consisted of breaking up the adhesions to relieve the obstruction and the establishment of drainage by means of a rubber tube through the posterior angle of the wound. The post-operative course was satisfactory.

Drainage continued for two weeks, the tube being shortened daily. The patient made a complete recovery.

Obstruction with paralysis from extensive operation on the mesentery disturbing its circulation is illustrated by the following case:

Male, aged 48, gave this history: About six weeks before he presented himself for examination, he experienced a rather sharp pain in the upper left quadrant of the abdomen, which lasted a few days but which subsided without any treatment. For the past two weeks he has been severely constipated increasing almost to an obstipation the last week. He noticed that his abdomen had become somewhat larger in the past three weeks. Examination: Upon examination of the abdomen it was noticed that the left side of the abdomen gave a decided dullness while the right side was markedly tympanitic. The dull area seemed to begin at about the splenic region and extended almost to the navel.

Laboratory findings: There were twelve thousand leucocytes, eighty-six percent polymorphonuclear, fourteen percent mononuclear cells. The red blood cell count was four million eight hundred thousand. The hemoglobin was ninety by Talquist Method. A Wassermann test on the blood gave a negative reaction. The urine contained no casts, albumin, sugar, acetone or indican. A fluoroscopic examination revealed nothing of importance. The preoperative diagnosis of tumor was made. Operation: Upon opening the abdomen a large rather necrotic tumor mass in the mesentery of the transverse colon was found. This was dissected away from the bowel and removed en masse. The tumor had caused an almost complete obstruction of the colon. It was not thought advisable, at the time, to do a resection of the affected bowel. Pathology: The macroscopic appearance of the specimen removed which contained about eight inches of mesentery, was that of a thickened inspissated mass of firm tissue, unlike that found in either benign or malignant growths. When the mass was cut through, the center was found to contain a cavity lined by a thick layer of granulation tissue

and encapsulating several cubic centimeters of thick necrotic material in which was found a fish bone, four centimeters long. Post-operative course: This was stormy from the very beginning. Twenty-four hours after the operation he began to show evidence of distention accompanied by vomiting, which at first seemed to be of the reflex type. It was not relieved by lavage. In seventy-two hours reverse peristalsis was established, as evidenced by the vomitus changing from a bile stained material to a distinctly fecal vomitus. There was severe abdominal pain from the very beginning. There were no bowel movements after the operation. A secondary operation was not permitted. Although the methods given above, such as gastric lavage followed by the duodenal tube, proctoclysis of soda and glucose, hypodermoclysis of salt solution, etc., were given, at the end of ninety-six hours the patient was in shock with rapid, feeble pulse and finally collapsed, death occurring two hours later. Post-mortem examination revealed the colon to be black red in color, distended to at least twice as great in diameter as normally, the peritoneal surface showing considerable thickness. The wall of the colon was densely infiltrated with opaque thick fluid, the same fluid being found in abundance in the lumen of the intestine.

Obstruction with paralysis of a loop returned after prolonged strangulation is illustrated by the following: Mr. C., aged 56, merchant, gave this history: He has had a large, left inguinal hernia for the past ten years. Thirty-six hours previous to the time when seen, while lifting a heavy case "felt something give way" in the left inguinal region. This sensation was different from the usual feeling when the hernial sac would protrude. The pain was so severe that he was compelled to go to bed. Six hours after the onset, vomiting began and continued at frequent intervals up to the time of operation. There was inability to produce bowel movement. After various attempts at reducing the hernia by the usual methods failed, he was sent to the hospital. Examination at the hospital: Face sunken, eyes prominent, anxious, depressed expression,

temperature 96.8, pulse 110, breathing somewhat labored. Abdomen was tympanitic, most prominent in lower left portion; resonance was irregular, the left inguinal canal contained a round mass, about the size of a hen's egg. The region of the left inguinal ring was extremely sensitive, a good deal of induration could be felt, above and to the left of the internal ring. A diagnosis of strangulated left inguinal hernia was made. Operation: After incising the skin in the usual way, the parts were exposed and a knuckle of small intestine was found strangulated in the hernial sack. The loop of intestine was twisted. This portion of the bowel was distended, cyanotic, surface dull but not gangrenous. There was no peritonitis. The coil of intestine was liberated; the circulation became re-established; it was returned into the abdomen. The sack was ligated, excised and invaginated, and the operation was completed. The patient's pulse increased in rapidity, the vomiting subsided, the bowels moved freely, nevertheless he died nineteen hours after the operation. Post mortem showed no peritonitis; strangulated portion of the intestine congested but not perforated; mucous membrane ecchymotic; small veins thrombosed. What was the cause of death? It did not seem to be the strangulation, nor peritonitis, but auto-infection either from absorption of the decomposed proteids that began rapidly after the liberation of the obstruction, or an auto-infection through the thrombosed intestinal veins, more likely the former; as we have exactly the same results when the infected veins including the mesentery have been resected as was illustrated by case two. Discussion: Wilkie¹ has shown that the contents of the intestine above an acute obstruction are very toxic and teeming with bacteria, and that the mucosa protects the organism against toxemia until it becomes seriously damaged.

Injury to the afferent nerve supply, as a blow upon the epigastrium, may produce a paralysis and all the manifestations of obstruction: A bullet wound in the mediastinum may have the same effect, as is illustrated in the following case: A police offi-

cer was pursuing a burglar upstairs when the latter turned and fired downward. The bullet passed into the mediastinum at the right sterno-clavicular junction. There was no evidence of injury to the lung, large blood-vessels, or stomach, but the patient gradually developed symptoms of ileus: pain in the abdomen not severe, slight tenderness, persistent vomiting, enormous distention of the abdomen, complete absence of peristalsis, inability to produce bowel movement. These symptoms continued for seven days, patient's pulse was then 140, temperature 99, respiration 46, facial expression bad and death seemed imminent. Diagnosis: Perforative peritonitis. Laparotomy: The intestines enormously distended but not congested, no inflammation at any place in the peritoneum, a small amount of transuded serous fluid was present in the most dependent portions of the cavity. Without further manipulations the abdomen was closed. The stimulation of the operation produced an active peristalsis which was soon followed by the passage of gas and feces, vomiting ceased, pulse improved, facial expression changed and the patient made a rapid, uneventful recovery. This is a typical case of ileus from afferent nerve paralysis.

Pathologic lesions and injuries of the spine, as fractures and trauma, caused by operative procedures, produce a paralysis of the intestines, followed by great meteorismus. It is one of the most unpleasant complications following manipulations of spine. The following case illustrates: Male aged 42, history given as follows: A few hours previous, patient fell from a flight of stairs; when he was picked up he was paralyzed and remained so, though he was quite conscious. Examination: There was a complete paralysis of all the extremities and he was aphasic. Thirty-six hours afterwards he became unconscious, his respirations were purely diaphragmatic, his abdomen became enormously distended, priapism was marked and peristalsis was absent. The tympanites was extreme, the usual preoperative treatment was continued for four days, operation for a decompression of the spinal cord with a view that the cord was

being compressed by blood was advised, but it was denied by the patient's family. These symptoms continued until the fourth day when he succumbed. Post mortem was denied.

Reflex paralysis as that produced by operation for gall stones or for kidney stones is illustrated by the following: Mr. U. G., aged 78, was seized suddenly two hours previously with violent pains in the abdomen and severe vomiting. The vomiting at first was food contents, later mucus and at the time of examination, it was distinctly fecal. There was a good deal of distention throughout the abdomen. There was distinct dullness over the right side of the abdomen, with tympany over the greater portion of the left side. No palpable mass was found. There was no glandular adenopathy. Due to the fact that this patient was seen two weeks previously for a beginning gangrene of the right great toe due to an endarteritis, a diagnosis of mesenteric thrombosis was made. After the usual methods, which included enemas at short intervals, salt solution by hypodermoclysis, over a period of thirty-six hours were resorted to without success, the patient was taken to the operating room. Laparotomy revealed a gangrenous gall bladder filled with many small stones. There were numerous thick adhesions to intestine and adjoining viscera in the region of the gall bladder. The stones were removed. Due to the age of the patient, his condition on the operating table and the gangrenous condition of the gall bladder, it was thought advisable to drain rather than remove it. In addition to the drainage tube in the gall bladder the peritoneal cavity was also drained. The post-operative course for the first few days was satisfactory. On the fourth day, however, he began to show signs of undue distention, which was not relieved by lavage. This was accompanied by severe and persistent vomiting, pain of an excruciating nature, and inability to produce bowel movements. The stomach was washed every four hours. Due to the inability of the patient to retain the duodenal tube either through the mouth or through the nose it was not used. Continu-

ous proctoclysis of 2 percent soda and 5 percent glucose was given. One thousand c.c. of a 3 percent salt solution was given by hypodermoclysis. From the experience of a previous case in which the stimulation of air in the peritoneal cavity started peristalsis, the peritoneum in this case was exposed to the air by removing the peritoneal drainage tube and the two nearest stitches. In a short time, active peristalsis began, followed by the passage of flatus and feces.

Infection ileus from peritonitis occurs under two conditions: namely, from a circumscribed local inflammation and from a general peritoneal infection. In ileus from a circumscribed inflammation we have the symptoms so commonly observed in circumscribed suppuration around the appendix. The pain occurs suddenly and may be either local, referred or general, but is most severe at one point. The nausea and vomiting are of short duration, usually not more than one-half hour and within six or eight hours there is an elevation of temperature to 100 degrees or more, and not infrequently a chill, marked resistance of the abdominal muscles and tenderness is present over the seat of inflammation. On the other side of the abdomen the examining hand may be pressed in without causing pain or inducing resistance. The tympanites is limited. The following case illustrates: Male, aged 16, who was taken ill three days previous to time he was first seen, gave this history. While working as a box-maker he was seized with a severe "cramp-like" pain generalized over the abdomen. This was accompanied by nausea and vomiting. The pain was severe enough to compel him to leave his work and go to bed. The next day he felt better. On the third day pain of much more severe character accompanied by persistent vomiting recurred. Examination of the abdomen revealed the fact that there was lessened diaphragmatic breathing. The right side of the abdomen did not move with the respirations. There was edema of the superficial tissues of the abdominal wall. There was a marked "board-like" rigidity of the abdominal muscles. Any attempt at palpation of the right side was strenuously objected to by the patient.

The facial expression was anxious and pinched. Diagnosis: Gangrenous appendicitis. Laparotomy revealed a gangrenous appendix with a localized peritonitis. The appendix was removed and drainage by means of a tube in the posterior angle of the right rectus incision, as well as a tube inserted by means of a stab-wound in the right flank, was accomplished. The post-operative condition was satisfactory for ten days, drainage through both tubes being profuse. Gradually as the drainage subsided the patient began to experience a dull pain in the abdomen accompanied by severe and persistent vomiting which was not relieved by lavage, although the stomach was washed every six hours. There was great distention. The toxemia and dehydration were combated by means of proctoclysis of soda and glucose, and hypodermoclysis of a 3 percent salt solution. A second laparotomy at the end of fourteen days revealed the fact that a coil of the ileum at the junction of the ileocecal valve was greatly distended. The intestine was of a black red color and the peritoneal surface showed considerable thickness. The abdominal cavity contained a large quantity of an opaque thick fluid. Due to the extreme condition of the patient, simple drainage was instituted. The symptoms of ileus continued until the end of the fourth day when the patient succumbed. Post-mortem was denied.

Note what a great contrast this is to the ileus of general peritonitis. In this variety the pain is intense and extends all over the abdomen, the nausea and vomiting are persistent for days, the temperature is elevated to above 100 degrees, except in the presence of collapse; enormous and uniform meteorismus, absence of respiratory movement of the entire abdomen; knees flexed; on palpation resistance is greater, muscles are more firmly contracted, deep percussion note uniformly resonant: complete absence of peristalsis. It is impossible to induce a bowel movement. The obstruction is complete and remains so until a few hours before death, when relaxation takes place.

Mr. L. M., aged 36, colored, gave this history: Ninety-four hours previous to time

when first seen, patient was seized by a severe "cramplike" pain, which at first was generalized over the abdomen, becoming localized over the right side, in about twelve hours. This was accompanied by nausea and persistent vomiting, temperature 101, pulse 120, thoracic respirations 38. Examination of abdomen revealed the fact that there was complete absence of diaphragmatic respiration. Abdominal muscles over entire abdomen were extremely rigid. The percussion note was "board-like." Tenderness was a little more extreme over the right side, although the entire abdomen was quite tender. A laparotomy revealed the fact that a ruptured appendix with a generalized diffused peritonitis was present. Due to the condition of the patient the appendix was not removed but drainage was instituted by means of rubber drain at the posterior angle of the right rectus incision, as well as a rubber drain through a stab wound in the right flank. There was profuse drainage through both tubes, but temperature remained above 100, the pulse ranging from 120 to 140, the diaphragmatic respirations were absent, thoracic respirations 36 to 50. On the fourth day the abdomen became uniformly distended, with extreme pain, absence of peristalsis, inability to produce bowel-movement, persistent vomiting. On the twelfth day the patient collapsed and succumbed three hours afterwards. Post-mortem revealed the fact that the peritoneal surface of the intestines were eroded and congested, the lumen greatly distended, appendix adherent, flakes of lymph on its surface, an ulcer of the mucous membrane with perforation.

In this case the methods for combating shock and toxemia, above described, prolonged the patient's life to twelve days, where he otherwise would have died within thirty-six to forty-eight hours.

Uremic ileus: In uremic ileus we have symptoms very clearly resembling those of mechanical intestinal obstruction. The physical signs of intestinal obstruction as increased peristalsis, tympanites, circumscribed area of dullness are absent, while the vomiting, the pain, and the inability to produce bowel movements are persistent.

This may follow a laparotomy on a patient who has previously shown evidence of organic disease of the kidneys. It must be remembered however, that a small percentage of albumin is often present even in mechanic ileus. The following case illustrates: Mrs. G. M., aged 36, was seen with the following history: For the past ten years patient had been suffering from a dull, bearing-down pain in the small of the back. She was advised a number of years ago to be operated for tumor of an ovary. For the past six days patient had been having severe pain in the abdomen, with persistent vomiting, the vomiting being aggravated even by the taking of water. She did not think that she had had a bowel movement since the onset of her present condition. Bi-manual examination revealed the presence of a large cyst of the right ovary, also that both fallopian tubes were enlarged and adherent, the body of the uterus was fixed. The urine showed a slight trace of albumin with few hyaline and granular casts. It was thought that this pathologic condition of the urine was caused by back pressure due to compression of the cyst on the right ureter. Diagnosis: Mechanic ileus caused by compression of the ovarian tumor between the bony wall of the pelvis and the fixed condition of the pelvic adnexa. Laparotomy revealed a large dermoid cyst measuring 10x6x5 centimeters. It was rather hard in consistency and appeared to be surrounded by a thin, outer dense fibrous capsule. Upon cutting through the cyst it was seen to consist of several compartments, which were filled with masses of fat containing boluses of hair, also in one of the compartments was found one fully developed canine tooth and another tooth in the formative stage. The tubes were short and tortuous in appearance, the serosa being congested. A loop of intestine was found to be compressed by the cyst. Upon delivery of the cyst, gas was heard rumbling through the bowel. The post-operative course was stormy. The urine continued to show a trace of albumin with few hyaline casts. In spite of the fact that the patient was given 1,000 c.c. of normal salt solution intravenously daily for four days, 2,000 c.c. 3 percent salt solution

by hypodermoclysis, and 2,000 c.c. of 2 percent soda and 5 percent glucose by proctoclysis, "Murphy" method, the urinary output for the first four days was not over fifteen ounces daily. Vomiting was persistent. This was not relieved by lavage of the stomach with a soda solution, which was repeated every six hours. On the fourth day the vomiting increased in severity, pain became severe and generalized over entire abdomen and the inability to produce bowel movements became persistent. Enemas returned clear without the passage of flatus. The distention became more severe, the patient began to hiccough and finally collapsed, death following in six hours. Post-mortem was denied.

Conclusions:

1. Difficulty may be experienced in making an early diagnosis of post-operative ileus.
2. The cardinal symptoms, which are present from the beginning, are vomiting, inability to evacuate the bowels and severe abdominal pain.
3. The reduction of the present high mortality in post-operative obstruction depends upon early diagnosis, preoperative treatment to combat the shock, toxemia, dehydration and starvation; followed by an operation designed to relieve the obstruction.
4. It is important to refrain from extensive operative procedure, especially if the patient is in a weakened and toxic state.
5. It is recommended that a simple colostomy, or enterostomy be done, or at any rate a drainage operation. The more extensive operative procedures which may be indicated may be done later.

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DISCUSSION

S. D. VanMeter, Denver: I wish to compliment Dr. Miller on his excellent paper; and to express my pleasure in agreeing with him and his ideas in general on the subject of acute intestinal obstruction,—to my mind the *bête noir* of abdominal surgery.

It is a difficult task to discuss this problem in the time allowed; therefore I can only emphasize the points Dr. Miller has so well made; and lay stress upon the special importance of:

1. The prevention of post-operative ileus.
2. Its early recognition.
3. The necessity for prompt surgical action.

Most essential in the prevention of post-operative ileus is respect for the rights of the abdominal viscera during operation, and recognition of the value of the velvet touch of operator and assistants in avoiding peritoneal trauma. These should be constantly kept in mind, and religiously observed. Further, the careful restoration of the abdominal organs to their normal positions so far as is possible before closure should be recognized as a most important preventative of post-operative ileus. From my observation and experience, I am thoroughly convinced that the ordinary rubber drainage tube is a frequent etiologic factor of post-operative ileus. I cannot condemn the use of such drainage tubes too strongly, especially where loops of the small intestine are in contact. I am sure I have had better results since abandoning their use, and substituting therefor the Penrose drain.

The second point upon which I would lay particular emphasis,—that of early recognition—is unfortunately more easily called attention to than carried out. I know of nothing in abdominal surgery which is at times more puzzling, more difficult, to decide,—whether existing symptoms and physical signs mean obstruction, or a temporary stasis. Particularly is this true in the beginning; and it is at that time that differential diagnosis means so much to the future of the patient and the peace of mind and reputation of the surgeon in charge. There is no other way of solving any difficult problem,—or it would be simple instead of difficult. The early recognition of ileus is no exception. Careful study and application of the principles enumerated by Dr. Miller should enable one to make an early diagnosis in the majority of cases. Personally, I think the significance of a slow pulse in the early stage of intestinal obstruction is too frequently undervalued. Again, the expulsive character of the emesis is not to be ignored.

In regard to the third and most important point to which I wish to call special attention,—that of

early relief, or mechanical cause of the obstruction—I cannot better express my views than to quote the language of Sir John O'Connor on this subject:

"It is not pertinent to the context to analyze the psychology which inspires postponement of operation in acute appendicitis until what is academically styled 'the cold stage' supervenes, further than to interpolate that patients so treated who escape immediate translation to the glacial state remain endowed with a nest of adhesions which renders them likely candidates for premature mortification by the peristaltic contortions of their own small gut. And in parenthesis I must add that I am unable to comprehend the mentation which complacently admits of 'We'll wait until tomorrow to decide' in a case of suspected acute intestinal obstruction."

It is impossible to advocate any particular operation. It depends wholly upon the individual case. Two general principles one should keep in mind:

1. Relief of the mechanical obstruction with dispatch and as little operating as possible.
2. The removal of the pent-up toxic fluid in the intestinal canal above the obstruction.

Even in very bad abdominal cases, ileostomy immediately above the obstruction will, in my judgment, save many lives. Ileostomy, however, performed on the first distended loop of bowel encountered on opening the abdomen, without regard to its distance from the point of obstruction, frequently,—in fact, usually,—ends in failure and disappointment.

The practical use of the colon tube inserted during operation as an aid to the riddance of toxic intestinal contents frequently proves of great help.

In conclusion, I wish to say that the value of combating dehydration by subcutaneous, intravenous and colonic use of salines should never be forgotten.

A PRAYER

It is my joy in life to find
At every turning of the road,
The strong arm of a comrade kind
To help me onward with my load.

And since I have no gold to give,
And love alone must make amends,
My only prayer is, while I live,—
God make me worthy of my friends.
Frank Dempster Sherman.

Naming the Baby

She ransacked every novel.
And the dictionary, too,
But nothing ever printed
For her baby's name would do;
She hunted appellations
From the present and the past,
And this is what she named him
When the christened him at last:
Julian Harold Egbert
Ulysses Victor Paul
Algernon Marcus Cecil
Sylvester George McFall.
But after all the trouble
She'd taken for his sake,
His father called him Fatty,
And his schoolmates called him Jake.
—Unknown.

BOVINE TUBERCULOSIS IN COLORADO

JAMES J. WARING, M.D., Denver, Colorado

Trade follows the flag and tuberculosis follows trade. The aborigine everywhere was unaffected with tuberculosis; before the white man came the American Indian knew it not. Over-crowding does not breed tuberculosis; spontaneous generation died a swift death in its first passage-at-arms with the immortal Pasteur. But over-crowding does spread the germs of pre-existing disease, hence the high morbidity and mortality of the cliff-dwellers of Manhattan.

The report (copies may be secured from the City Club) of the Health Committee of the City Club of Denver on the operation of the Tuberculosis Eradication Law in the State of Colorado cannot be quoted in full, but one important point will stand further commentary, viz., the very low natural incidence of tuberculosis among Colorado cattle and the economic importance of preventing the increase of this minimal incidence.

So far as tuberculosis incidence is concerned, cattle are much like human beings. The beef cow of the range is practically free from tuberculosis, the dairy cow of the over-crowded barnyard is often a victim. Until cattle from the eastern part of the United States were introduced into the middle western, western and southern states, tuberculosis was practically non-existent among the live-stock in these regions. The incidence of positive tuberculin reactors among the cattle population of the states of the Union varies from about three percent to more than twenty percent. Colorado boasts a natural incidence among the lowest. The report, dated November 10, 1924, by Dr. Charles G. Lamb, state veterinarian, on the administration of the Tuberculosis Eradication Law, gives 4 percent positive reactors of 6,297 animals tested with tuberculin in the accredited herd work, and a little over 3 percent positive of 3,470 cattle in one eradication area, and about 1½ percent of 4,307 cattle positive in the other eradication area. It is well to remember that these figures represent an average of 1,145 herds. The individual herd percentage, in many instances about 20 percent,

varied from 0 to as high as 50 percent for one herd of forty-four cows producing milk for the Denver market. Compare these figures with those of some of the most carefully supervised herds of New York State. In spite of all precautions to prevent infection, in 1922 among the herds supplying the Boroughs of Manhattan and the Bronx with "certified milk", 2.8 percent of 4,800 cows reacted to tuberculin. A small badly infected herd of dairy cows or a single cow with tuberculosis of the udder is a much greater menace to the public health than a herd with only four positive reactors slightly diseased among 100 animals. In other words, one cow giving heavily infected milk is a greater menace than 100 positive reactors with minimal lesions probably not throwing off any tubercle bacilli. The tuberculin reaction does not distinguish disease from infection in cattle any better than in human beings, all of which is hard for the layman to understand. In 1910 the Bureau of Animal Industry undertook to eradicate tuberculosis from the herds of the District of Columbia. Nine years effort reduced the percentage of reactors from 18.8 percent to less than 1 percent. The economic importance of deliberate administration of the Tuberculosis Eradication Law in the State of Colorado, while the incidence of tuberculosis among the cattle is yet minimal, is manifest. The comprehending legislator will vote for the appropriation of \$85,000 asked for the continuation and extension of tuberculosis eradication work among the cattle of Colorado.

Thousands of indigent tuberculosis are "resorting" to Denver and other cities of our state in search of health. If this means anything it means that Denver is a "health resort". The obligation to make proper provision for the irreducible quota of the indigent and coincidentally to protect the native population and the "stranger within the gates" from infection by enforcement of the anti-spitting ordinance and our old-sufficient laws relating to tuberculosis registration, disinfection, etc., is inescapable.

DIPHTHERIA IN INFANTS*

With Special Reference to the Effect of Treatment

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Although many observations of infections in infants, due to the diphtheria or diphtheria-like bacilli have been published, the effect of treatment in such cases has not been stressed. Therefore, the object of this paper is to bring evidence before the profession as to the occurrence, resulting clinical manifestations, and effect of treatment of infections due to the diphtheria and diphtheria-like bacilli.

Some very interesting observations have been made since 1910, by some German observers. William Buttermilch¹ in 1914, found that 16 per cent of the infants under observation in the Children's Hospital were carriers of diphtheria or diphtheria-like bacilli in their nasal secretions. This percentage was obtained upon routine culturing of sixty-five infants, with no regard as to the presence or absence of clinical symptoms, such as nasal discharge or snuffles. Ten of the sixty-five cultures were morphologically diagnosed as diphtheria or diphtheroids and subjected to animal experimentations with antitoxin controls. From this series, three cases with clinical nasal diphtheria were found to harbor typical virulent *B. diphtheria*. Two cases without clinical nasal diphtheria were found to harbor true virulent diphtheria. Five cases without typical nasal diphtheria were found to harbor typical virulent diphtheria-like organisms.

One of the cases of virulent diphtheria without clinical symptoms was a case of marasmus which lost weight no matter what feedings were given. The Schick test was positive. The author states that the weight curve showed a gain in weight as soon as the bacilli disappeared from the nasal cultures.

Erich Conradi², another German observer, reports a series of ten cases in infants with nutritional disturbances, wherein the presence of true *B. diphtheria* was demonstrated in the nasal cultures. There were no clin-

ical manifestations of diphtheria. These cases ranged from three months to twelve months in age: the majority being between seven and twelve. It is interesting to note that all of these were cases of infants who were greatly underweight and undernourished, dealing with such conditions as marasmus, rickets, and what he calls, "those with a lymphatic constitution". Loss of weight was marked in all cases, and artificial feeding was a failure. Antitoxin was used in some cases with no effect. Conradi attributes the absence of clinical manifestations of diphtheria in these malnourished infants to the fact that a malnourished body does not react to the infection as readily as a healthy body.

This has also been brought out by Teisier and Guinard³, by a series of animal experiments. They found by experimenting with pneumonia and diphtheria in dogs, that the malnourished animals gave pathologic change of much lighter form.

Heubner⁴ in 1894, described three cases of "latent diphtheria infection" in weak children (scrofula and rickets).

E. Hollotz⁵ in February 1920, published an interesting paper on "Diphtheria of the New-born." She reports a series of epidemics of nasal diphtheria from the Königsberger Frauenklinik, of a total of 134 infants, 21 per cent showed positive nasal cultures.

Kerstien⁶ emphasizes the possibility of the infection of infants through the vaginal canal. He found three infants with positive cultures on the first day of life. He quotes the investigation of Menge and König who found diphtheria bacilli in the vagina of healthy women.

Broer⁷ cites a case of positive nasal diphtheria in a new-born babe. He found upon investigation of the vaginal secretion of thirty women that diphtheria organisms were present in seven.

Rorhler⁸ describes a case of a six-day-old infant that developed diphtheritic conjunctivitis, rhinitis, and severe croupous involve-

*Read at the annual meeting of the Colorado State Medical Society, October 7, 8, 9, 1924.

ment of the pharynx and oesophagus. Diphtheria bacilli were found in large numbers in the urethral secretion of the mother. Therefore, Hollotz concludes that this must be carefully considered as a source of nasal and vaginal diphtheria and diphtheritic conjunctivitis in infants.

Van Arnim⁹, in 1916, reported an epidemic wherein several infants developed snuffles and purulent nasal discharge. This was thought at first to be due to syphilis, but when the Wassermanns were reported as negative, nasal cultures were taken, and found to be positive for diphtheria. He cites the disease picture as follows: purulent or sero-purulent nasal discharge, excoriations about the nostrils, interference with respirations, marked loss of weight, and temperature of 100 F. to 101 F.

Eseh¹⁰, in 1917, reported two epidemics of nasal diphtheria from the Marburg clinic. In the first epidemic twelve out of fourteen babies developed difficulty in breathing, muco-purulent nasal discharge, slight increase in temperature, and eleven of the twelve remained below the birth weight. In the second epidemic, eighteen out of thirty-three babies developed like symptoms.

It is interesting that in all these epidemics reported, the symptomatology is practically identical. The etiology and clinical course of these cases is given in full and yet nothing has been given concerning the treatment or effect of treatment on these cases.

Diphtheritic infections elsewhere than in the nose and throat have occasionally been reported in infants.

M. Henkle¹¹, in 1919, reported four cases of diphtheria of the umbilicus in the newborn. L. Spolverini¹² reports a case of diphtheria in the nose and throat of an infant thirty days old. This patient had the symptoms of diphtheritic rhinitis. He also had a discharging ear, which upon culturing showed a typical B. diphtheria. Spolverini thinks that chronic otitis media in infants is more often due to B. diphtheria than was formerly supposed.

From the above resume of the available literature on diphtheria in infants, we find that the status is yet far from settled. Therefore, some years ago while yet a mem-

ber of the Pediatric Department of the State University of Iowa, I determined to make a study of this problem. Routine nose and throat cultures were taken of all admitted to the hospital, regardless of age. This practice was also extended to the taking of secondary nose and throat cultures upon all cases that showed any of the following symptoms or signs; (a) unexplainable temperature, (b) nasal discharge of any character, (c) sore throat, (d) difficulty in taking food, (e) unexplainable failure or loss of weight. By this means we were able to detect many cases of low grade diphtheria and many carriers of diphtheria which might have gone on unrecognized and might have caused serious epidemics.

Between October 1, 1920, and May 1, 1921, 48 healthy maternity babies were received in the department. Out of this number, 17 cases or 35 per cent were found at one time or another to harbor diphtheria bacilli, either in the form of carriers, or true cases of diphtheria. Fourteen of these 17 cases or 82 per cent showed typical symptoms of diphtheria. The remaining 3 cases or 18 per cent never developed symptoms.

Age Incidence

On taking the age incidence of these 17 cases reported above, the following statistics are cited:

1 month and under, 6 cases or 35 per cent of the total 17 cases.

1 to 2 months, 4 cases or 23 per cent of the total 17 cases.

2 to 3 months, 1 case or 6 per cent of the total 17 cases.

3 to 4 months, 3 cases or 18 per cent of the total 17 cases.

4 to 5 months, 2 cases or 12 per cent of the total 17 cases.

5 to 6 months, 1 case or 6 per cent of the total 17 cases.

From this we see that the greatest incidence falls in the group of these cases under 1 month of age. Three cases, however, were considered diphtheria carriers, but were treated the same as the true clinical cases. Nevertheless, the occurrence of true clinical diphtheria in infants of nursing age is very striking and the incidence is much higher than generally believed. This limited num-

ber of cases cannot be considered as an accurate index of the incidence found in infants, but serves more as an index of what at times can occur.

Location of Infection

The location of the infection in these 17 cases is of great interest. All of the 17 cases showed positive nasal cultures. Twelve of the 17 cases or 70 per cent showed positive nasal cultures alone. Four of the 17 cases or 23 per cent also showed positive throat cultures. Two of the 17 cases or 10 per cent also showed positive vaginal cultures, and one case a positive eye culture. From the above, it is readily seen that nasal diphtheria comprises the largest majority of these cases in infants. This in itself, shows the fallacy now in vogue in many of our child-caring institutions, namely, that of taking only throat cultures upon admission.

Symptoms and Signs

The symptoms and signs in infants vary with the location of the infection, the age of the patient, and the general nutrition of the patient. As the child grows older, the symptoms and signs tend to approximate those found in adults. As a general rule, the younger the infant, the less manifest are the symptoms. Therefore, in healthy infants, often the only suspicious sign of a diphtheritic infection may be a failure to gain in weight. This clinical picture, however, is most often found in poorly nourished babies, marasmus cases, and those which F. Conradi² calls, "those with a lymphatic constitution".

A wide variation in symptoms is present. In some, a slight purulent nasal discharge is the only thing seen, while in others, posterior nares dropping down on the posterior pharyngeal wall and thereby inoculating the probe when cultures are taken.

Vaginal diphtheria occurred in two cases of this series. It is manifested by a profuse purulent vaginal discharge, causing irritation of the vulva. In all the cases studied the nasal discharge is streaked with blood. Those cases that have a profuse bloody nasal discharge, epistaxis, slightly elevated temperature, irritability, refusal of feedings, bad stools and failure to gain in weight, are more easily diagnosed.

Pharyngeal diphtheria in infants is of

greater rarity, though it does occasionally occur. The high incidence of diphtheria bacilli in throat cultures in many of our cases is probably due to the secretions from the both in this and other series, repeated smears and washings were negative for the gonococcus and for the trichomonas vaginalis.

The presence of *B. diphtheria* in the eye discharge in one case was also noted. There was nothing about the discharge that suggested a diphtheritic origin, but cultures were taken because of the presence of diphtheria bacilli in the nose and throat. Diphtheritic conjunctivitis must therefore be borne in mind in all cases of nasal diphtheria, because of the close anatomical relationship of the nose and eye.

The most interesting of all are the under-nourished or marasmus cases. It is this type of case which I wish to lay most emphasis upon in this paper. In fact, this type of child is most easily affected, and most commonly overlooked. I have in my series six such cases which I shall report in full later on.

Such children harbor true virulent *B. diphtheria* in their nasal secretions, and yet show little or no signs of diphtheria as it is commonly known. I am inclined to believe that this diphtheritic infection is secondary in the larger number of cases. If this be true, we can imagine the sequence of events as follows:

An infant is poorly fed from birth—nutritional errors are continually made, and the child loses rapidly in weight and strength. This, naturally, decreases the child's resistance to infection and a diphtheria infection begins in the nose. When the child is brought to the hospital he belongs to the typical marasmus group. Scientific feeding is brought into play and the infant is given every possible chance to gain in weight. But he fails to do so. Routine cultures are taken and diphtheria bacilli are found in the nasal culture, though there is not the slightest sign or symptom of infection. Is this failure to gain in weight due to this local infection in the nose? I believe it is—as I shall substantiate in case reports later on in this paper. It is my opinion that local infection of any kind may have the

same "holding down" effect, but that a diphtheritic infection is more commonly the cause, because of the exo-toxin producing power of the *B. diphtheria*.

Schick Test

It is common knowledge through the review of past literature that the Schick test under the age of six months is rather unreliable. This was found to be true in my series of cases. However, a rather interesting experiment was carried out on a small series of infants where cultures were persistently negative for *B. diphtheria*. Six babies without nasal discharge and six babies with nasal discharge were subjected to the Schick test, in order to determine whether infants with nasal discharge were more susceptible to diphtheria. It was interesting to note that all the infants without nasal discharge were negative to the Schick test. Five of the six with nasal discharge reacted positively. Of course this is too small a series to offer any conclusions, but I include it in this paper as a matter of interest for future thought.

Laboratory Methods

The Circulating Toxin tests and the Virulence tests were carried out with all the cases in this series with a great variation in results. I shall not attempt to give the methods followed or the tabulated results, as they were too diversified to offer any conclusions. I was unable to demonstrate sufficient circulating toxin in the .15 c.c. of blood serum, which could be injected intradermally in a guinea pig's belly, to cause diphtheritic necrosis. These results coincide with the experience of Professor Bela Schick who states, "Sufficient circulating toxin to produce necrosis upon the belly of a guinea pig cannot be procured even from a severe case of laryngeal diphtheria."

Virulence tests were likewise carried out upon all of this series as well as all other cases of diphtheria in the department. The reports of these tests were even more diversified, and in many cases did not coincide with the clinical picture. Many cultures from supposedly healthy infants, reported morphologically as diphtheroids, were found to be most pathogenic for guinea pigs.

Others, taken from true clinical diphtheria cases, morphologically true granular diphtheria bacilli, were reported non-pathogenic for guinea pigs. For these reasons I was unable to come to any definite conclusions. These tests were carried out not only in this small series, but also upon all cases of diphtheria in children of pediatric age. The results have led me to believe that one cannot rely upon the Virulence or Circulating Toxin tests as an index of pathogenicity of the diphtheria bacilli.

Effect of Treatment

The effect of treatment upon these cases of infantile diphtheria has been of special interest. In this respect, I shall confine my discussion to those cases showing few symptoms and signs referable to diphtheria. Let me repeat, these are the cases that are holding or losing in weight, with poor stools, slight nasal discharge, little or no fever, and yet nasal cultures are reported positive for diphtheria or diphtheria-like organisms. It was my practice in these cases to try every available means of treatment first. Formulas of all kinds were given. When this failed to produce results, "Water Soluble B", the growth stimulating vitamine, was added to the diet in large amounts. When all this failed, these cases were transferred to the isolation department and treated as true diphtheria cases. The results were surprising. Cases of this type began to gain almost immediately following the use of antitoxin, even on ordinary artificial feeding formulas. They continued to do so, as long as they remained under observation.

To what can these results be attributed? Is it the diphtheria antitoxin or is it a non-specific protein reaction? This question can only be answered by means of a large series of cases carefully checked and controlled, by the use of both horse serum and antitoxin. I have had the opportunity to test this out in just one case since this piece of work was done, and I found that horse serum gave no effect whatever, while the antitoxin treatment was quickly followed by negative cultures and a gain in weight. Therefore, it is my belief that these good results can be attributed to the specific action of the antitoxin, which, when neutralizing the circulat-

ing toxin, relieves the "holding down" influence upon the baby, and the baby begins to gain in weight.

Case Reports

Case 1. E. P., admitted January 10, 1921. Age, 2 months, 6 days. Birth weight: 6 pounds, 10 ounces. Entrance complaint: Malnutrition. Family history: Negative except for the history of tuberculosis in two aunts and one uncle. Past history: Full term, first child, easy labor, no instruments used. Artificially fed from birth and did well for the first three weeks. On leaving the hospital, was put on Eagle Brand Condensed Milk formula for three weeks. On this the babe developed loose, green stools and lost in weight. For the last four weeks has been on a milk-water-Dextri-Maltose formula. Vomiting and regurgitation followed and stools are now constipated. Physical examination revealed that of typical marasmus with no subcutaneous fat, large distended abdomen, general dried up appearance. Laboratory examination on admission: Von Pirquet negative, vaginal smear negative, blood count normal. Cultures: Nose diphtheroids, throat negative, urine negative, blood Wassermann negative.

At admission, this babe weighed 3,000 gm. Regardless of the history of constipation, the babe was put on a formula of Hoos Albumin Milk for the first two days. There was a slow gain in weight. She was then placed on a formula of part Hoos Albumin Milk and part skim milk with Dextri-Maltose added. On this she gained in weight to 3,300 gms. on January 22. On January 23, a slight nasal discharge was reported, but disregarded entirely. She was then put on a whole milk-skim milk-Dextri-Maltose formula, and held in weight until January 24. Then she began having frequent, loose, green stools and lost slowly in weight. She was then put on Eiweiss milk and Eiweiss and skim milk formulas, then held in weight until February 6; from February 6 to 10 she dropped steadily in weight. (Water soluble B. vitamine had been added to this formula from February 1 to 10 with no success in causing gain in weight. Also the calories were sufficient, being 118 per kilo. on the theoretical weight.) During this time, re-

gurgitations and emesis appeared, besides the frequent loose stools. The temperature oscillated between 99 and 100.

On the evening of February 10, routine nose and throat cultures were taken on all of the babies in the ward. The cultures on this babe showed granular diphtheria organisms in both nose and throat. No symptoms had been present except the loss in weight, regurgitation, emesis, and bad stools. This babe had been kept on a part Eiweiss formula and received 10,000 units of antitoxin. Following this, she gained steadily from 2,950 gms. on February 11, to 4,050 gms. upon discharge March 27, a total gain of 1,100 gms. in 45 days.

It is clear that the feedings had nothing to do with this gain other than supplying the calories for the body needs, after the "holding down" factor was removed. The babe had been kept on a part Eiweiss formula until February 25.

On February 19, cultures were negative for diphtheria bacilli but positive for diphtheroids in the nose and throat. They remained this way until March 3, the babe was then transferred from the isolation ward back to the pediatrics ward and from that time on, the clinical course was uninterrupted. It is interesting to note that the bacteriological laboratory reported positive granular diphtheria organisms upon subculture and pure culture of the culture taken upon admission which showed nothing but diphtheroids upon examination here. These were also reported virulent for guinea pigs a few days later.

In conclusion, it is also interesting to note that diets which, before antitoxin treatments, failed to cause a gain in weight, even with water soluble B. vitamine added caused a remarkably steady gain in weight following the use of the antitoxin. It undoubtedly saved the baby's life.

Case 2. M. B., admitted February 2, 1921. Age 8 months, 4 days. Birth weight 6 $\frac{3}{4}$ pounds. Entrance complaint: Feeding trouble. Family history: Negative. Past history: Full term, normal labor, no instruments used. Healthy child at birth. Artificially fed from birth on a formula of Eskay's Food and top milk. Physical examination: Typical mar-

asmus case, with no subcutaneous fat, pinched facies, inelastic skin, slightly enlarged abdomen, and considerable separation of the recti muscles. Laboratory tests on admission: Cultures: Nose negative, throat diphtheroids, urine negative except for a trace of albumin, blood count normal. Blood Wassermann negative.

On admission this babe weighed 2,500 gms. Cultures on admission were negative for true diphtheria. The babe was put on Eiweiss milk to begin with and for the first six days gained steadily to 2,700 gms. On February 8 baby had an intestinal upset with loose frequent stools, temperature of 98 to 101. By February 11 the weight had dropped to 2,450 gms. The babe's condition at this time became alarming. The eyes were sunken, there was a greyish pallor, and non-elastic skin—signs of dehydration. Three hundred c.c. of saline were given by hypodermoclysis. This caused a gain in weight on February 12 to 2,650 gm. which was promptly lost to 2,480 gms. on February 13. Nose and throat cultures were taken on the evening of February 12, and were found to contain diphtheria bacilli and diphtheroids in the nose, although no nasal discharge was present.

The babe was then transferred to the isolation ward and 10,000 units of antitoxin given. From February 13 to February 17 there were frequent bad stools, and the babe held in weight, but from February 17 to his discharge on March 17, he gained steadily in weight—2,480 gms. to 3,200 gms. The nasal cultures remained positive for diphtheria until February 23, and positive for diphtheroids until March 3, when he was transferred to the pediatric department.

It is interesting to note that this babe was underfed calorically on its theoretical weight until March 3 and that a gain in weight occurred only after the use of the antitoxin. This, similar to case No. 1, at no time showed any symptoms of diphtheria.

Case 3. L. G., admitted February 1, 1921. Age 3 months. Birth weight 5 pounds, 3 ounces. Entrance complaint: Feeding case. Family history: Negative. Past history: Full term babe, normal labor. Artificially fed from birth and did well up to time of admission. Physical examination: Negative.

Laboratory tests on admission: Urine negative, blood count normal, Von Pirquet negative, blood Wassermann negative. Cultures: Nose occasional diphtheroid, throat negative.

Throughout the month of February the babe practically held in weight. On February 25, bloody nasal discharge was reported and nose and throat cultures were taken. The child at this time was receiving approximately 115 calories per kilo, on his estimated weight, which should have been enough to make him gain in weight. The weight then was 3,300 gms. and he was having frequent loose stools.

Cultures showed diphtheria bacilli in the nose, and on February 26, the babe was transferred to the isolation ward and 10,000 units of antitoxin given. The feedings were left unchanged. A steady gain in weight followed immediately, stools became normal.

The nasal discharge disappeared on March 2, but the nasal cultures were persistently positive until April 6. Then on this date, the child was transferred to the eye, ear, nose and throat department for tonsil and adenoid removal. At this time the weight was 3,900 gms., a total gain of 600 gms. in one month. Previous to the administration of antitoxin, he had been holding in weight.

Case 4. L. H., admitted January 12, 1920. Age 18 days. Birth weight 7 pounds $12\frac{1}{8}$ ounces. Entrance complaint: Feeding case. Diagnosis: Normal maternity babe, no other history obtainable, artificially fed from birth. Physical examination: Normal babe. Laboratory tests on admission: Cultures negative, blood count normal, Von Pirquet negative, urine negative, blood Wassermann negative.

On admission this babe weighed 3,435 gms. He did well throughout the months of January and February and gained steadily in weight to 4,580 gms. on February 29; from March 1 to March 14, he held in weight in spite of feeding. Nasal discharge was reported on March 5; upon culturing, it showed diphtheroids. At this time, the stools were good, there was no temperature, but the babe was holding in weight as previously mentioned.

On March 6, 1 c.c. of toxin-antitoxin was given. This was followed by a gain in weight

on March 14, and lessening of the nasal discharge. Nasal culture on March 30 showed diphtheria bacilli, so 1 c.c. of toxin-antitoxin was repeated. At this time there was a slight temperature, 99.6 degrees. On April 4, the temperature again arose to 99.6, accompanied by a profuse, bloody nasal discharge. The babe was transferred to the isolation ward as a nasal diphtheria case, and 10,000 units of antitoxin given. The weight at this time was 4,380 gms. No weight was taken during his stay in the isolation ward. From April 6 to April 14, he ran a temperature of 99 to 102. Nasal discharge lessened following antitoxin and was last reported on April 10. The last positive diphtheria culture appeared on April 19 and the third negative culture on April 26. He was then transferred to the pediatrics department. The weight then was 5,730 gms. From then until July 28, the babe gained more or less steadily in weight to 7,650 gms. on July 29. Then he developed a septic temperature of 101 to 105. Cultures were taken again and diphtheroids were found in the nose. Examination of the urine showed 7,000 pus cells per sq. mm. of urine, and a diagnosis of pyelitis was made. The weight dropped to 7,380 gms. on August 2, due to this temperature and was 7,570 upon discharge on August 21, cured, from the pyelitis.

Case 5. N. J., admitted September 20, 1919. Age 20 days. Birth weight 8 pounds, 8 ounces. Entrance complaint: Feeding case. Family history negative. Past history: Normal birth and delivery. Physical examination: Normal babe. Laboratory tests on admission: Urine negative; cultures negative.

When admitted weighed 4,190 gms. Held in weight until October 1, when he developed an oscillating temperature of 100 to 105, loose, frequent stools, and refused his feedings. On October 4 he had lost in weight to 3,700 gms. Blood count at this time showed 35,000 white blood cells, urine negative. Cultures showed diphtheroids in the nose on October 4. Ten thousand units of antitoxin were given on that date; the temperature dropped to normal, the stools became normal, and a great increase in weight

followed. Within eight days, it rose to 4,300 gms.

Following this, a gradual gain in weight occurred until December 11, then the babe developed a temperature of 102.4 with swelling of the cervical lymphatic glands. The weight at this time was 5,500 gms.

Cold packs were applied locally to the neck and the temperature came down to 100-101, where it oscillated until December 16-17. Paracentesis was done on both ears, showing a double otitis media, culturally negative for diphtheria. Throat cultures at this time showed diphtheria bacilli, and the babe was transferred to the isolation ward. On December 27, the temperature went up to 105 and gradually became septic from 99 to 103. This was accompanied by a profuse discharge from the right ear, and profuse nasal discharge. Following this, both ears began discharging, and double mastoidectomy was done on December 27. Tonsillectomy and adenoidectomy was done on January 6, 1920. Cultures on January 10, 13, and 14, showed diphtheria bacilli in both nose and throat cultures. The case was transferred back from the isolation ward February 10, and the weight then was 5,650 gms.

Again on March 4, bloody nasal discharge was reported and the cultures showed diphtheria bacilli in both nose and mastoid cultures; therefore 1 c.c. of toxin-antitoxin was given. This was repeated on March 10. Nasal cultures on March 11 and 15 were still positive for diphtheria. But the last culture taken, on May 6, showed only diphtheroids in the nasal culture. The weight continued to rise steadily. On June 8 the weight on dismissal was 7,700 gms.

Case 6. R. W., admitted February 6, 1920. Age 18 days. Birth weight 5 pounds $\frac{3}{4}$ ounces. Diagnosis: Normal maternity babe. Entrance complaint: Feeding case. Family history: Negative. Past history: Normal delivery, full term. Physical examination: Normal babe. Laboratory tests on admission: Urine negative, blood count normal, Von Pirquet negative, cultures negative.

On admission weighed 2,750 gms. Made a gradual gain in weight from 2,750 on February 17 to 2,950 on February 29, but held

in weight after that until March 7. Nasal discharge was reported on March 1, and cultures were taken. On March 2 these showed diphtheria-like bacilli in the nose and throat, and 1 c.c. of toxin-antitoxin was given. Gain in weight started on March 7, and rose from 2,950 on that date to 4,100 on April 6; then the case was discharged. Nasal discharge was last reported on March 15, and the last positive culture for diphtheroids occurred on March 6, just previous to the gain in weight.

Conclusions

1. Diphtheria does occur in infants under six months of age.
2. Diphtheria in infants and young children is, largely nasal.
3. The absence of typical symptoms and signs of diphtheria in infants is no absolute indication that the case is not one of true diphtheria.
4. The presence of diphtheria bacilli or diphtheria-like bacilli, in the nasal cultures of marantic infants, or infants holding or losing in weight, may be of great therapeutic significance.
5. Antitoxin may be of great value in the treatment of some of these cases.

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DISCUSSION

Emanuel Friedman, Denver: I feel that a paper so well prepared and presented as Dr. Russell's should not be passed up without some discussion. I think his experience has been very unusual; certainly strikingly at a variance with that of the text book writers. In looking up the article on diphtheria in one of the standard text books, I find the statement that Rolliston encountered out of 2,600 cases of diphtheria in children, only, I think, something like twenty under one year of age; and Beginsky, basing his statement on observation of 2,700 cases of diphtheria, found only fifteen in infants under six months of age. I think that we are indebted to Dr. Russell for calling the attention of the profession to the fact that diphtheria in infancy is far more prevalent than our text books lead us to believe. My personal experience, and I speak of it with some hesitation, because it is based upon so small a number of cases, is also at variance with Dr. Russell's findings. I looked up my records for the past five years, and I came across seventy-one cases of either clinical diphtheria, or instances of a positive culture upon ordinary routine examination. In these seventy-one cases I found that eleven were under the age of two and a half years; two of these were just one year old, and not a single one had I encountered under the age of twelve months; and I would like to say, parenthetically, that I have taken a very large number of swabs from the nasal passages of children and infants where the symptoms and signs pointed to an acute infection, or where a rhinitis was persistent in character. However, we should bear in mind that diphtheria does occur in infancy, and that it may even occur in the newborn. The reason that diphtheria occurs rather infrequently in infants is the high content of antitoxin, as shown by the Schick test I think only about fifteen or twenty per cent of children under nine months show a positive Schick test; and a second reason, and one that is perhaps equally important, is the fact that these infants are not brought into contact with large numbers of individuals; indeed, their contact is pretty well limited to the immediate members of their family.

Dr. Russell, (closing): This paper, due to the limitation in time, had to be cut down. No literature was reviewed in this paper except for publication, and there it was modified also. The work of diphtheria in infancy, as I said before, has been very limited. The only English publication that I know of that has been worth anything is that of Sir Humphrey Rolliston. His work is entirely different, and does not correspond with the work of some forty other men in Germany, in Vienna, and in other parts of the country. The point of diphtheria in the maternity babies, I believe, has been disregarded as an impossibility. It has not been looked for. We have not cultured for it. We do not do it in this city. Some interesting work has come out in the last few years with diphtheria, vaginal diphtheria, and urethral diphtheria, in the mother; and I believe this is our possible source of diphtheria in maternity infants. A great many of these cases of vaginal diphtheria have been cultured and worked out morphologically, and found to be positive, and the baby developed diphtheria. The Schick test, I did not bring up in my paper, because of the limitation of time and because it is such a large point. The Schick test is unreliable under six months or age. Many of these youngsters that I have worked with show negative Schick's, and yet had nasal diphtheria, and became negative following antitoxin treatment. I

spoke to Prof. Schick about this, and he could not understand why it was; I don't understand, either; I don't say that the work is correct. It is only preliminary; it is preliminary on a certain limited number of cases. I have not had opportunity to check it with a larger number of cases, and I have my feelers out in New York and Chicago, and various other places, for this work to be looked up and followed, if possible. Only time will tell. It is just something that we might overlook. We

means a great deal when you consider the population of the country, and the number of marantic cases in New York and Chicago. I believe that focal infection anywhere, whether the ear, nose or scalp, will keep a baby from holding or gaining any weight. That has been well checked, and this is just one factor that might prevent some child sometime, wherever you may be, from gaining in weight and going on and possibly dying of what we know as marasmus. might save one baby out of a thousand. That

FRACTURES IN FOREARM: EXTENSION IN TREATMENT*

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Dealing with closed fractures of both bones of the forearm of oblique character, we often have to do with shortening, owing to passing or overriding. This may be overcome in some instances, but resumes in others, notwithstanding proper manipulation and well directed effort at fixation. Occasionally it is overlooked until adhesions interfere with or preclude reduction and perhaps give occasion for operation.

Within the period of some ten days, most of these cases can be cared for satisfactorily without operating, if sufficient extension can be maintained. There's the rub, or it would seem to be; and yet usually it is not a serious contention. Dealt with early, taking advantage of x-ray findings, shortening or the tendency can usually be efficiently overcome. Later it becomes more difficult and less promising. However, unless displacement is gross, it is seldom of serious detriment to the individual, though usually seriously regarded; more so in girls. Books would seem to leave us to our own devices.

In cases of this nature I have employed with advantage a means supplemental to the more or less usual anterior and posterior splint dressing; which with thumb provision and shaped, should be wide enough to project slightly over forearm under moderate pressure. a strip of pasteboard added at sides to support. As a preliminary I attach to the hand front and back, zinc oxid adhesive plaster of two and a half inches width, in separate straps that reach from above the wrist to some six inches beyond the extended fingers, allowing them below to

come neatly and accurately into adhesive contact. These are maintained by a two-inch strip around hand including knuckles, or by a two-inch strip in form of modified "8" which encircling hand in this manner is left wide open at the wrist in front. In either instance—especially the latter—undue swelling must be recognized early and relieved. Instead the adhesive plaster may be applied indirectly—over hand and wrist covered neatly by figure of "8" bandage. Then, the extremity in advantageous posture (prone on plane about height of shoulder, while seated), proceeding with and concluding the usual splint dressing, and with the forearm at right angle; I apply a plaster of paris encasing bandage, including the hand—not tightly—and the lower arm; a bent strip of metal in front of the elbow giving neater angle and adding strength, if this is desired. While this is fixing I include beneath by supplemental turns a light flat wooden splint designed to project some three inches beyond the extended fingers. This, having a cross piece at the end rising an inch, affords means of extension when the double adhesive strap extending from the hand is drawn taut over the end and maintained beneath by thumb tacks.

The completed dressing should now have fixed relation to the extremity, and not giving otherwise—slacking of the traction strap that follows should correspond in some degree with, and be taken as evidence of some extension attained; allowing early for giving at cottoned elbow. Tension should not be uncomfortable, and slack having been taken up several times—true ex-

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tension can be easily and accurately determined in total,—measured, say from a table knife entered within the dressing at back of elbow and resting evenly upon the humerus and olecranon, to the end of the extended fourth finger; in contrast to other forearm. It then remains usually to maintain the strap taut at sufficient extension until the purpose has been served.

Two young friends—patients earlier for passing fractures in the forearms, who seemed destined to operation, but in whom the result under this treatment has filled all exactions,—are here for your critical inspection. Another—not a subject of injury, with this dressing applied in demonstration, will also circulate.

In conclusion, it may interest to add: I have also used this plan of extension with splints adapted in the treatment of compound comminuted fracture in the forearm where definite extension seemed indicated.

DISCUSSION

S. Fosdick Jones, Denver: I wish to compliment Dr. Miel upon his presentation of this interesting and very important subject.

The technique employed by him has been so very carefully described and demonstrated that there is nothing further to add to this method, if the use of plaster of paris dressings combined with traction is to be employed.

I should like to describe a method which was first used several years ago by the late Dr. Andrew McCosh of New York and which has been of very decided value in the treatment of forearm fracture, particularly when occurring at the middle or lower third. Traction (moleskin) straps are applied to the forearm on both anterior and dorsal aspects down to the lower end of the upper fragment. A second set of moleskin traction straps are applied in a similar manner up to the upper end of the lower fragment, these straps extending four to five inches beyond the ends of the fingers. Antero-posterior splints are then applied to the forearm after reduction, and the upper traction straps drawn snugly over the end of the splints with the forearm flexed at right angles. The lower traction straps can then be drawn as snugly as one desires over the lower end of the splint and held in place by a roller bandage. In this manner both traction and counter traction are exerted. A gauze or muslin bandage is then loosely applied and the splints held in position and the forearm carried in a sling.

The counter traction is found to be of great aid, particularly so in dealing with marked over-riding which so frequently occurs in forearm fractures.

The use of plaster of paris, as described by Dr. Miel, makes a most satisfactory dressing in these cases, but such a type of immobilizing splint must be carefully observed and diligently watched; for

swelling commonly occurs in forearm fractures and the danger of Volkmann's Ischaemic Paralysis or Contracture developing must always be borne in mind.

In conclusion, I should say that traction in forearm avulsions has the following advantages:

First, in preventing rotation of the fractured bones and in maintaining the ideal position of midway between supination and pronation.

Second, malunion between the ulna and radius is largely overcome by preventing rotation of the bones of the forearm.

Third, reducing muscular spasm and thereby aiding greatly to the comfort of the patient.

Fourth, reducing the danger of over-riding of the fragments and largely eliminating lateral bowing.

Dr. Miel has demonstrated a very valuable method in the treatment of this type of forearm injuries, which will be the means of successfully handling many of these more obstinate and difficult cases.

Dr. Miel, (closing): I have very little to say or add. I thank Dr. Jones for his kindly part in the discussion, and I know that he is in a position to appreciate all the points related. But in the application of the dressing, as you see it here, there is very little opportunity, little or none, for any undesired effect: the forearm and hand are put up between the splints amply padded with strips of pasteboard at the sides, cotton interposed: a little pad here, or there as indicated; one's finger easily entering these corners as they have abundant room. That is one advantage of boxing the forearm; and the only chance for making trouble is to have in the hand too much swelling if there is constriction anywhere from the adhesive plaster holding the two pieces that are attached to the hand; after a day or two they hold very well themselves. The first traction is not strong, because they have to have a chance to warm up and adhere, and we do not need to bind them tightly. This boy has pieces about here (illustrating), that are holding as recently applied very well. I do not have to put much traction on the hand, either. A difference of a sixteenth of an inch can be determined. You have studied the character of fracture in the x-ray picture, and you know what you are doing. Suppose we do not use a dressing of this kind in dealing with oblique fracture? We commonly make use of two light, flat splints, one at the front and one at the back, and in completing the dressing draw upon the hand and forearm and clamp them between these two splints; in a few days we open again, draw further, and clamp; this a third and fourth time. The dressing I am using will not have to be disturbed at all. As said, we have to think these things out ourselves, as we get very little suggestion from the books. If we can go to the woodbox and down into the cellar and get these common things which answer, and add to them for a few cents at the corner drug store, it seems to me this is advantageous; other splint devices that might be used, as offered, have not impressed me until now; that described by Dr. Jones would seem efficient.

Opportunity

They do me wrong who say I come no more,
When once I knock and fail to find you in,
For every day I stand outside your door
And bid you wake and rise to fight and win.
—Walter Malone.

THE X-RAY IN THE TREATMENT OF IMPAIRED HEARING*

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In the last twenty-five years no real advance has been made in the treatment of chronic deafness, therefore any procedure that gives promise of even occasional benefit, however irrational it may appear and however lacking in scientific precision, warrants careful consideration.

We believe that the x-ray does, in some measure, fulfil this promise, and so present this brief report of our experimental work during the past nine months.

Three groups of pathological factors enter into the production of deafness, those involving the middle ear, the naso-pharynx, and the receiving mechanism or so-called end organ.

Until recently it has been taken for granted that diseases of the conductive apparatus, in most instances produced by infections or obstructions in the upper air passages, have furnished an overwhelming proportion of the cases of impaired hearing.

In nearly all of the cases of this type which have been benefited by treatment, the improvement has resulted from the measures employed for the correction of these obstructive and infective foci, and not from the direct treatment of the ear itself.

Unfortunately the proportion so benefited has been small, and for those not responding to these procedures there has been little hope from pure otologic treatment. The same statement applies to diseases of the receiving mechanism: if they are of toxic origin the lessening of the toxemia may result in some increase of hearing, otherwise slight if any results are to be anticipated.

In all cases where such pathological conditions exist and upon whichever structure they react, it is essential that they be corrected preliminary to whatever other treatment may be instituted, therefore these additional procedures are to be considered simply as adjuvants or complimentary measures. This must be understood at the outset in order properly to appreciate the purpose of the x-ray, its limitations and the

probable reasons for such beneficial results as may occur.

The Roentgen ray has no visible effect upon these lesions aside from its proven power of reducing lymphoid tissue, an important desideratum when this tissue exists in the naso-pharynx and about the tubes.

As these deposits are only occasionally a factor, some explanation must be found for those other cases in which there are marked abnormalities in either the middle or internal ear and in which undoubted benefit sometimes occurs.

It certainly cannot be ascribed to any mystical regeneration or reconstruction of tissue. The only rational explanation, therefore, lies in a possible stimulating effect of the rays upon the auditory nerve. Some proof of this contention has recently been adduced by Pacini. He has obtained photographs of the changes produced in nerve and brain structures of experimental animals by small Roentgen ray doses such as those employed in treatment of the ear.

As compared with non-irradiated control specimens, these photographs, obtained by illumination with ultra-violet energy and a microscope with an optical system made entirely of quartz, registered obvious and marked changes in the chromaffin structure.

It has been advanced, upon grounds which cannot be discussed in this paper, that much of the deafness which has always been ascribed to pure interference with conduction is not entirely so due, but depends in some measure upon coexistent lesions in the receiving apparatus, either secondary to the pathological processes in the conducting mechanism or primarily central, and secondarily aggravated by the middle ear lesions.

If this supposition is true, this, in connection with the proven fact of a definite influence being exerted upon the nerve structures by the x-ray, shows the theory to be not untenable.

In fact no other hypothesis can adequately explain the occasional remarkable results achieved in cases of extensive and long ex-

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istent destruction of the membrana tympani, malleus and incus, with epidermitization of the promontory, in cases of partial nerve deafness uncomplicated by adhesive or destructive processes in the middle ear, and in cases of oto-sclerosis.

The large majority of the cases treated by us had previously been unavailingly subjected to all the usual otologic and rhinologic measures, so such results as were achieved must be ascribed to the action of the rays. In this respect they probably offer a better criterion of what is to be expected than would a series of patients in whom other procedures are concurrently instituted as is usually the case.

The cases have been classified simply as improved and unimproved. By improved are meant those in whom perception of the whispered and spoken voice, irrespective of the results of tests with tuning forks, aeoumeter and watch, has been improved to an appreciable degree. In the final analysis no other result is of importance: unless there is real subjective improvement, it matters little what results are obtained with instruments of precision.

The report is based upon 63 completed cases, in each of which sufficient time has elapsed since the cessation of treatment to show whether or not the obtained results were purely transitory.

The following table gives a brief summary of the results:

	Cases			
	Im-	Unim-		
	proved	proved	%	
Chronic Non Suppurative				
Otitis Media	38	21	17	55
Chronic Suppurative				
Otitis Media	10	4	6	40
Oto-Sclerosis	12	5	7	41
Nerve Deafness with				
Residual Hearing..	3	2	1	66
	—	—	—	—
	63	32	31	50.79

Age: The cases ranged from 17 to 76 years, the age seeming to have no determining effect upon the results of treatment.

Duration of deafness: The impairment of hearing had lasted from a minimum of 3 to a maximum of 52 years, the average being 12.

Thus all cases of acute involvement, many of which spontaneously improve, were eliminated. The duration seems to exert no direct effect upon the results, except that the longer the duration the greater the loss of acuity, and naturally the chance of improvement decreases generally in direct ratio to the increase in the degree of disability. This is seen in the following summary:

	Cases		Unim-
	Improved		proved
Total Deafness			
Unilateral	3	1	2
Bilateral	13	1	12
Partial Deafness			
Unilateral	18	11	7
Bilateral.	29	19	10

Technique: In treatment two distinct indications are to be met: reduction of lymphadenoid tissue and neural stimulation. The first need not be detailed as it follows the customary usage in such cases: the second is met by the employment of an extremely weak dosage, frequently repeated. Practice has shown the following to be the most useful:

Milliamperes—8.

Kilovolts—65 to 70 (equal, on our machine to 4-inch spark gap.)

Filter, aluminum—1½ millimeters.

Tube distance—18 to 24 inches.

Time—3 to 30 seconds over each exposed area.

Four exposures are made at each treatment: one each through the anterior fontanelle, the occiput, and a point one inch above and behind each external auditory meatus, the central ray always being directed towards the sella turcica. This is given every other day, or occasionally at daily intervals, for about twelve treatments. If no response is then obtained, the treatment is permanently discontinued. If improvement is manifest additional exposures are given as indicated.

Unless real improvement, both subjective and objective, occurs during the course of the primary series, nothing is gained by a continuance, for response is usually astonishingly prompt if it occurs at all.

In some instances, after a moderate gain

during the primary course, additional improvement has resulted from another series after an interval of one or two months.

Tinnitus: In our experience little effect upon tinnitus has been observed. In only two cases was there marked improvement and it was impossible to say whether or not this was simply fortuitous. In this respect our conclusions are at variance with those of other observers, several of whom report a surprising diminution in this distressing symptom.

Conclusions

1. The x-ray is occasionally of great value in the treatment of impaired hearing.

2. It is applicable only to those with residual hearing. It offers no hope to the totally deaf.

3. It does not supersede established methods of otologic practice, but should be employed in connection with, or supplementary to them.

4. The original pathology seems to exert no marked determining influence upon the efficacy of treatment.

5. When improvement occurs, it first appears after surprisingly few treatments.

6. It is entirely free from danger.

7. It is worthy of further study, over extended periods of time, so that its status may be definitely determined.

8. It has produced undoubted improvement in a considerable number of patients who had failed to respond to other methods of treatment.

DISCUSSION

C. E. Cooper, Denver: I have enjoyed very much indeed the reading of Dr. Lockard's and Dr. Argall's paper. If there is any situation that offers but little encouragement to the patient, it is that of chronic progressive deafness, regardless of what part of the ear mechanism may be involved. Up to the present time we have not been able to give these people much that they wish. Surgery of the nose and throat and accessory sinuses has in some cases produced very good results. Treatment of the acute lesions are quite commonly followed by good results. In this instance we eliminate the acute lesion. But the chronic progressive type that year after year progresses, and in which there is a progressive loss of hearing, has thus far evaded the attempt of otologists to either cure the disease or restore the function, and in a great many cases, to stop the progress of the disease. Therefore, anything that would offer to these people an opportunity or even a chance of having the function restored, or the progress stopped, is well worth consideration.

Unfortunately, in the use of x-ray we have no scientific way by which to gauge the result. We have, you know, no method of explanation. Why do we get these results? The results are stated from an empirical standard. Now, empirical information is valuable knowledge. There can be no question but that that is true. There is one thing, however, about empirical knowledge that should be taken into consideration, and that is, it must meet with the approval of a great many observers. There must be a consensus of opinion, that, in this instance, we will say, the exposure of the patient, in chronic progressive deafness, to the x-ray has produced an increase in the function of hearing, or has stopped the progress of the disease. Up to the present time, there have not been enough otologists experimenting with the x-ray to give us statistics upon which to formulate a judgment. Now, being interested in the question, quite naturally I thought that I would investigate it. My experience has been totally opposite to Dr. Lockard's and Dr. Argall's. I have not had any result whatsoever. In one case only, and in that I am doubtful, a child with a bilateral eighth nerve neuritis, following measles, which had gone on until there was destruction of the nerve so far as we could tell, was subjected to the x-ray. This child was practically totally deaf when the x-ray was administered. At the conclusion of the series of treatment, twelve, I think it was, the child could hear a voice, a loud voice, at four feet; it could hear an ordinary voice at about an inch, and could hear a very loud shouting at about ten feet, that is, as loud as an individual could talk. Now, that, I think, is well worth while, because it took this child out of the class of the totally deaf, and put it into the class of children that can be taught in appropriate institutions. This little child is three years old. On the other hand, we know perfectly well that inflammations of the nerve tend to a spontaneous recovery. We also know that inflammations of a nerve can be helped to recover their function by the administration of certain drugs, and unfortunately in this particular case the child was under the care of a neurologist who was giving it at the time iodine, and thyroid, and strychnine and quinine. Whether or not the cause of the improvement was due to the x-ray, or to drug therapy which the child was taking, I do not know. The child was given another series of x-ray treatments without further improvement in the neuritis. Now, in cases of otosclerosis, I got absolutely no result whatever. In the slight chronic cases with obstructed tubes, in which there was lymphatic hypertrophy, if you should get results at all, you should get them in this type in the very beginning—I have three or four such cases without result of any sort or description. In the chronic cases, going on for years and years, I got absolutely no result. In chronic suppurative otitis, that occasionally becomes dry and at other times discharges, I got no result after treatment.

One thing happened in my cases that was rather interesting: Two of the cases, subsequent to the x-ray exposure developed attacks of nausea, vomiting, vertigo, and one case of nystagmus, and that particular patient was confined for a period of three or four days. I think that the x-ray is capable of stimulating the tissue. There is no doubt about it.

Dr. Argall, (closing): We have only been doing this work for about nine months. One of the sixty cases was a very prominent woman here. She was the first case we treated. We had marvelous results after five or six treatments. She

was in about a month ago and her hearing was practically normal; complete restoration, having no difficulty whatsoever. Now, she had been to a number of other otologists, and her prognosis five years ago was ultimate deafness, that is, of the progressive type. There are other cases going around now, that a great many of the men know

of, some of them professional men, so I merely am giving you the statistics of our cases as we have worked them out. Other men, apparently, have not gotten the same results. What the difference is, I don't know, so that all we can say is that our benefited cases have been improved for at least eight months.

INFLUENCE OF DIET FROM FETAL TO ADULT LIFE*

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We are made of the foods we eat. From the beginning of fetal life through infancy and childhood, up to and through adult life proper foods properly balanced are necessary for the development and maintenance of life and good health in the body.

Recognizing this fact two questions naturally come to our minds, first, what are proper foods, and second, what do we mean by properly balanced foods? To answer these questions we must briefly consider the vital food elements, their derivation and the roles they play in the body.

The vital food elements are protein, fat, carbohydrates, salts, vitamins and water.

Proteins

Proteins or albuminous substances are complex bodies consisting of carbon, hydrogen, oxygen and nitrogen, combined usually with phosphorus, sulphur or iron, and are the chief chemical elements composing the cells of our bodies.

They are supplied in the form of vegetable proteins and animal proteins, the latter having been formed from the former through the medium of another animal. They are also divided into complete and incomplete proteins, depending upon whether they contain in themselves all the so-called "building stones" essential to the repair and growth of the tissue cells.

Examples of complete proteins are found in the animal foods, milk, white of eggs and lean meat, also in some nuts and the soy bean.

Incomplete proteins are found in vegetables and cereals.

In order to promote growth in young animals proteins must contain amino-acid lysin

in suitable amounts. The animal proteins are particularly rich in lysin.

Fats

Fats consist chiefly of carbon and hydrogen and small amounts of oxygen, and are also derived from both vegetable and animal sources.

Fats are burned up in the body by a process of oxygenation and supply heat and energy to the body.

Examples of fats are cream, butter, yolks of eggs, fatty meats, and the oils of vegetables and nuts and cereals, also in a few fruits, especially the avocado, or alligator pear. Fats may also be formed in the body by the conversion of carbohydrates.

Carbohydrates

Carbohydrates are composed wholly of hydrogen, carbon and oxygen and are derived almost exclusively from vegetable sources. They occur in the form of various kinds of sugars and starches, the latter being converted into sugar within the body. Carbohydrates are also burned up in the body by a process of oxygenation and also supply heat and energy to the body.

Every protein molecule contains a carbohydrate group which when split off in the body may be burned up and also supply heat and energy to the body. The protein remaining supplies the material for cell repair and cell growth, and any excess protein not needed for that purpose is excreted from the body in the form of urea.

Salts

The principal food salts are calcium, sodium, potassium, magnesium, iron, phosphorus, sulphur, iodine, and chlorine, but the most important are lime and iron, for it has been shown that foods that contain enough

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of these two usually contain a sufficient amount of the other necessary mineral salts also.

Foods containing the largest amounts of lime are cheese, hazel nuts, almonds and walnuts, molasses, beans, especially the soy bean, chard and other greens, egg yolk, oatmeal, wheat bran, milk and olives. It is interesting to know that milk not only contains more lime than an equal amount of lime water, but that the lime in milk and milk products, such as cheese, is more easily assimilated by the body. It is said that a pint and a quarter of milk contains sufficient lime for a full day's supply.

Fruits in general contain very little lime, some of the few exceptions being figs, Zante currants and olives.

Iron is one of the essential constituents of the body, and is found in all living organisms, both vegetable and animal. The chief function of iron is to supply and maintain the hemoglobin of the blood, the chief constituent of the red blood corpuscles, which carry oxygen to the body cells. This latter function explains why an anemic person is short of breath, even when there is no trouble with the heart or lungs. This also explains why an anemic person becomes sallow, weak and lacks appetite, because food is fuel and the oxygen carried by the iron-containing hemoglobin is necessary to burn up the incoming supplies of fuel and prevent the accumulation of unused and clogging material in the tissues.

According to Kellogg, "women require a larger intake of iron in proportion to their weight than do men, and infants and children need much more than adults. The functions associated with childbearing and nursing make a special demand for iron which requires an iron ration for the average woman fully equal to that needed by the average man of greater weight.

"The expectant mother must supply iron for the blood of her infant, as well as for storage in its liver, from her own blood. In other words, the mother must furnish from her own store of blood iron, iron enough for blood making purposes to meet the needs of the infant not only before birth but for practically a whole year afterward,

at the end of which time its blood volume and its weight are three times as great as at birth."

"The monthly function of women involves a loss of iron which must be made good through a diet especially rich in organic iron. Even before puberty, girls require food richer in iron in proportion to their size than do boys for two reasons:

"(1) Because they grow faster than boys, becoming taller and heavier between the ages of 12 and 15 years than boys of the same age.

"(2) Because they usually eat less than do boys of equal age."

Breast milk contains more iron than does cow's milk, but even so does not contain enough to supply the daily needs of the nursing infant without drawing upon the reserve stored up in its liver. Artificially-fed infants are therefore more inclined to become anemic, unless other foods are added to the diet to supply the deficiency of iron in cow's milk. For this purpose beef juice, egg yolk, malt sugar, oatmeal, juice of prunes and oranges, and vegetable broths are especially valuable.

In fact vegetable broths, particularly when the tops of vegetables are added, can be used as an important source of supply of all the food salts.

Vitamines

Vitamines are necessary to promote growth. In their absence young animals do not develop, reproduction does not take place, mothers are not able to nurse their young, appetite and nutrition suffer, and certain deficiency diseases, such as scurvy, beri-beri, rickets, perhaps pellagra, and certain diseases of the eye (xerophthalmia) develop.

The existence of at least three well defined vitamins seems to have been clearly proven: viz, fat soluble vitamin A (growth producing), water-soluble vitamin B (anti-neuritic and appetite producing) and water soluble vitamin C (antiscorbutic). Two other vitamins have been latterly recognized; fat soluble vitamin D (anti-rachitic) and water soluble vitamin E (essential to fertility).

Vitamines apparently are produced only

in the vegetable kingdom through the medium of sunlight, which is also necessary for the production of all the food elements, and also for tissue cell growth.

Fat-soluble vitamin A is richly found in milk, butter, and other dairy products, egg-yolks, greens, sprouted barley and beans, cod liver oil, and in the liver, kidneys and other glands of animals in which certain quantities are stored probably as a measure of safety.

Water-soluble vitamin B is found in large quantities in milk, egg-yolk, whole cereals, fresh meats, molasses, vegetables, especially carrots, cabbage and turnips, and particularly in brewer's yeast.

Water-soluble vitamin C is supplied particularly by fresh fruits (especially citric fruits) and vegetables, raw milk, meat, tomatoes, and sprouting cereals.

Fat soluble vitamin D, which some observers believe is the same as fat soluble A is found especially in cod liver oil. Water soluble vitamin E is found in lettuce, rice (even when polished), oats, yellow corn bean pods, alfalfa and egg-yolks.

Since the water-soluble vitamin C is most easily destroyed by heat, the addition of fresh citric fruit juices or tomato juice to the diet of infants fed on boiled or evaporated milk is particularly essential.

Vitamins are also destroyed to some extent by the excessive addition of alkalines to the milk, and are largely removed by the so-called "high-milling" of cereals.

Cellulose

Cellulose found in vegetables, fruits and the outer covering of cereals is important in the dietary of children and adults because of its tendency to prevent and overcome constipation, and also for the mineral salts it contains.

Water

While water is not considered strictly a food element it is just as necessary to the body as any of the food elements. This is readily understood if we recognize the fact that it constitutes more than half of the content of the adult body and nearly three-quarters of the infant's body. It is the great solvent of foods, carrier of properly prepared food elements to the tissue cells,

and the vehicle of excretion of the waste products of the body, thus preventing auto-intoxication.

Amount of Water Needed

It is estimated that the daily loss of water from the adult body is about four and one-half pints. Since ordinary food, as eaten at the table, contains about one-half its weight in water, and since about twelve ounces of water are produced in the body by the reactions which occur in the processes of digestion, assimilation and dissimilation, about two to four pints (four to eight glassfuls) of additional water are needed to supply the daily loss.

In infants at least three ounces of water per pound per day should be supplied in food or otherwise.

The ingestion of a plentiful supply of water as an eliminative and in the prevention of constipation is especially important.

Properly Balanced Foods

Kellogg believes that a properly balanced daily diet for an adult should contain a sufficient number of calories per pound per day and should consist of one part protein, three parts fat, and six parts of carbohydrate, with a plentiful supply of mineral salts, vitamins, cellulose and water. As this is about the proportion in breast milk, the same is probably true in infancy and childhood as well.

It is important that the food elements should be supplied in a form which can be readily digested and assimilated, and in infancy we should also take into consideration the factors of growth and proper development, as well as the replacing of waste tissue cells; also the necessity for proper development of the digestive organs for the oncoming weaning period.

Protein needs in adults may be supplied by drinking at least a pint of milk a day, and in infants by giving one and one-half to two ounces of milk per pound per day.

In adults and children protein may be given in the form of meat, eggs or nuts; fat in the form of butter, animal fats, vegetable oils and nuts; carbohydrate in the form of starchy vegetables, cereals and cereal products, and sugar, preferably malt sugar, honey or fruit sugars; mineral salts, vita-

mines and cellulose in the form of green vegetables, coarse cereals and fresh fruits.

Remembering these and other dietary suggestions already given, there is no reason why insofar as food alone is concerned, we should not have a healthy mother able to produce a properly developed fetus, and satisfactorily nurse her infant to the ordinary weaning period; a properly growing infant, and child, developing in turn into a healthy adult. Or to put it in another way we cannot expect to have a healthy adult unless measures are taken to give a properly balanced diet to the expectant mother, to the nursing mother, to the infant after weaning or when artificially-fed, to the growing child and to the adult himself.

Diet and the Teeth

McCollum says the teeth are the one tissue in the body which when fully developed have no capacity for self repair once the exposed parts of the teeth are damaged.

It is therefore very important that all the essentials for producing a good set of teeth with good enamel should be supplied while the teeth are being developed in the fetus and early childhood.

The teeth and the bones of the body are composed largely of lime and phosphorus, in the forms of calcium carbonate and calcium phosphate. It appears that not only must these two elements be present in the food, in sufficient amounts, but in order to develop good teeth and bones they must be in a form that is readily assimilable and they apparently must be in certain correct relationship to each other.

Furthermore, even when their relationship is apparently correct for experimental animals, like guinea pigs, Howe has shown that if the foods are deficient in vitamins, there is first a marked loosening of the teeth, with the gums becoming soft and bleeding easily as seen in scurvy, and later the teeth become brittle and carious. With the addition of orange juice and green leaves, which are rich in water-soluble vitamin C, to the diet, the symptoms rapidly disappear.

Mellanby has apparently shown that the

fat-soluble vitamin A is also necessary for the proper development of the teeth.

On the other hand even when there is a deficiency of either lime or phosphorus, or both, in the diet of other experimental animals, like rats, which deficiency would ordinarily produce defects in the teeth and long bones, with the addition of cod liver oil, as shown by Alfred Hess, these defects are overcome, and the teeth and bones grow normally.

Whether this is due to vitamins or some other specific calcifying substance in the cod liver oil is not definitely known.

Hess has demonstrated that egg yolks act in a similar manner, while the vegetable oils apparently are lacking in this substance.

He has also pointed out that besides the action of lime and phosphorus, and this specific calcifying substance, the ultraviolet rays in sunlight and the rays from mercury-quartz and the common arc lamps will protect experimental animals from developing these defects in the teeth and bones. The good effects of these rays however are practically nullified by the interposition of window glass between the sunlight and the experimental animals. So it is quite evident that in experimental animals and probably in children also, at least four factors have been discovered in the prevention and curing of these developmental defects usually associated with rickets and to some extent with scurvy.

Rickets is seldom seen in children living in the tropics and in China, while decay of the teeth is seldom seen in primitive people and is practically unknown among the Eskimos living their natural lives in the Arctic.

The Highlanders of Scotland have excellent teeth, probably because of their simple diet, composed largely of brose, bannocks, buttermilk and potatoes, which are rich in mineral salts, and their outdoor life.

Soft foods, very hot foods and drinks, foods poor in lime and vitamins, cane sugar and starches in excess, seem to predispose to dental caries, while hard, dry foods, and a diet composed largely of greens, coarse vegetables, bran, acid fruits,

and the use of malt sugar, dates, figs and raisins in place of cane sugar, promote the health of the teeth.

In conclusion then it would seem fair to assume that proper foods properly balanced are not only essential to the health of adults, and the health and growth of infants and children, but also to the prevention of decay of the teeth, and developmental defects in the teeth and bones.

DISCUSSION

Edward C. Hill, Denver: Dr. Gengenbach has given us an excellent, up-to-date summary of the subject, and one well worth permanent preservation. There is no opportunity for adverse criticism of the paper, and I can simply emphasize the important points which he has made. In the first place, in the great majority of cases, carefully selected diet is far more important than medicine. Again, the need of simplicity in diet becomes more and more apparent. Three, or at most, four, things at a meal are enough for a well person, and it is important that these articles of food should be compatible with each other. If, for instance, the patient takes meat and milk at the same time, the milk will tend to inhibit the formation of acid, and he has trouble at once. Another important point, which Dr. Hoffman can emphasize more than I can, is the need of minerals in the diet. It seems that people who live in the wilds and eat the coarsest kind of bread, and other things like that, have very good teeth, and I certainly am impressed with the belief that if children from the first were fed with whole wheat preparations there would not be perhaps one-fourth the trouble with the teeth which modern children have. The need of vitamins is something very lately learned, and is extremely important. We have learned, for instance, that cod liver oil contains 240 times as much oil-soluble vitamins as butter; hence the value of that old food. We have learned that green vegetables offer a simple way of furnishing vitamin B water-soluble. We have learned that even tomato juice will take the place of orange juice to provide the water-soluble vitamin C. I wish merely to speak of the value of skin tests, in determining the origin not only of skin affections, but also of respiratory troubles, and of a great many alimentary disorders; also, the great importance and value of urinary tests in studying diets. The doctor has spoken of iron and calcium as being important elements of food, and I would add three others, very essential from the standpoint of the physician, namely, phosphorus and iodine and potassium. We need thirteen milligrams a day of iron, and we need potassium (in vegetables) and calcium (in the form of eggs and whole wheat preparations). It simply goes without saying that not only the kind of food and the amount of food is important, but also the way in which it is prepared and eaten. If it is tastefully prepared and eaten in an atmosphere of peace and content, it will do a great deal more good. As Shakespeare would say, "Now, good digestion wait on appetite, and health on both!"

Henry F. Hoffman, D.D.S., Denver: The essayist and your society are to be complimented on the presentation of such a complete and well prepared paper on this most timely subject.

I will not take up your valuable time in any attempt to discuss all the phases of the paper, but will confine my remarks to the teeth.

To quote from the paper, "McCollum says the teeth are the one tissue in the body which when fully developed, have no capacity for self-repair once the exposed parts of the teeth are damaged."

Considering what we know today about the systemic infections which may find entrance through the teeth, we can almost place the enamel of the teeth in the front rank as an element of safety or danger, according to the degree of perfection of development of the enamel.

The most potent factor in the normal development of the enamel is normal nutrition.

The age when the teeth, particularly the teeth of the permanent set, begin to develop, is ordinarily shrouded in mystery and uncertainty and I believe it will interest you briefly to call your attention to this factor in the development of the embryo and child.

About the seventeenth week of embryonal life enamel begins to form for the central and lateral incisors, and the cuspids of the temporary set. About the twenty-fifth week of embryonal life enamel has started to form for all of the teeth of the temporary set at what will eventually be the extreme cutting edges of the teeth and enamel has started to form on the grinding surfaces of the six year molars of the permanent set. At birth the crowns of all the temporary teeth are practically completed and the grinding surfaces of the six year molars of the permanent set are complete.

At one year of age enamel starts to form in the permanent central incisors. At six years of age all of the permanent teeth have started to form, except the third molars or wisdom teeth. Also at six years of age the crowns of the six year molars are completed, the roots are partly formed and the teeth have erupted. These are the largest, strongest, and most important teeth in the entire denture. They should be the mainstay in mastication for sixty or seventy years. At thirteen years of age the permanent set of teeth is practically completed.

The development of a tooth begins on the grinding surface. Enamel is first formed at that point and if proper nutrition does not take place the enamel is not perfectly formed. The deficiency occurs at that part of the enamel which is being formed with interference with nutrition takes place.

Upon the ability of the enamel of the teeth to protect the system may depend comfort, happiness, welfare, health and often life itself.

The dental and medical professions must devote more time and energy to preventive work and must come to regard this as demanding their first and best efforts.

To this end the subject of nutrition for normal, healthy growth and maintenance should have precedence over all other subjects, and reparative procedures should be regarded as of secondary importance.

The average steam-heated room at a temperature of 72 degrees contains air at a relative humidity of 23 per cent and is as dry as Death Valley; the best relative humidity for health is nearly three times that figure.

A radio course in educational psychology carrying college credit is being broadcasted by the University of Kansas.

SYSTOLE

Let no man falter who thinks he is right.
—Lincoln.

The virtue of prosperity is temperance; the virtue of adversity is fortitude.—Francis Bacon.

Do not be breakin' a shin on a stool that's not in your way.—Irish Proverb.

Fortify thyself with contentment; that is an impregnable stronghold.—Epictetus.

It is well to cure, but better to prevent a Distemper. The first shows more Skill, but the last more Wisdom.—William Penn.

He who would have no trouble in this world must not be born in it.—Italian Proverb.

Man is ever ready to think that his failure comes from without rather than from within.—George Moore.

What a man is depends largely on what he does when he has "nothing to do."—William D. Murray.

All are ready to be partners in a man's success, none in his misfortunes.—Indian Proverb.

The imagination is always apt to picture The Golden Age of life's great opportunities of action either in the past or in the future, while really, if we had eyes to see them, they are always in the present.—James Seth.

Surely there is a time to submit to guidance and a time to take one's own way at all hazards.—Thomas Huxley.

Regret calamities if you can thereby help the sufferer; if not, attend to your own work and already the evil begins to be repaired.—Ralph Waldo Emerson.

DIASTOLE

Salesman—"Let me sell you a pair of these bathroom scales, madam."

"Sir, I'll have you understand that in our family we have no need to weigh before and after bathing!"

"Can you suggest a motto for my new cafeteria?"

"How will this one do—"They also serve who only stand and wait'?"

Little Doris, anxiously, as the nurse looks at the thermometer: "Have I any temper?"

Remarkable cures are expected at the new Colorado General Hospital and Medical School. One of the side doors is labeled "Entrance for Cadavers."

—Contributed, G. H.

Dr. Edwin Faber and Dr. Robert Packard have suggested jokes for Diastole. We are saving them for the Heart Block column.

"Is Mrs. Knob doing well with her study of Christian Science?"

"Yes. She can't tell now when her coffee is too hot."

A Denver physician, who is getting a little stout, was recently informed by his young son: "Daddy, you used to have a big chest, but it slipped."

—Contributed, C. H.

Physician (interrogating patient) "Your name?"

Patient: "John Brown."

"Your age?"

"Forty-two."

"Married?"

"Yes."

"Your nationality?"

Patient, interrupting: "Say, Doc, I want an examination; I don't want to join a lodge"—Contributed, M. K.

NEWS NOTES

Dr. G. E. Richmond of Denver is recovering from a recent operation.

Dr. Melville Black sailed February 25th for a Mediterranean tour.

Dr. F. S. Spearman is now located at Phoenix, Arizona, where he is on the medical staff of the Veterans' Bureau.

Dr. Oliver Lyons recently underwent an operation at St. Luke's Hospital.

Dr. T. Leon Howard has returned from a vacation in Texas.

Dr. Ray Drinkwater has returned to Denver from the Mayo Clinic, where he was recently operated.

Dr. T. E. Carmody on February 9th delivered an address before the Academy of Medicine at Toronto, Canada, on "The Development of the Sinuses."

Dr. Tracy Love, of Denver, has returned to his practice following his recent illness.

Dr. J. N. Hall is spending a month in Honolulu.

Dr. D. G. Monaghan was called to Wisconsin by the death of his father.

Dr. A. J. Markley has returned from a trip to California.

The death is announced of Mr. Ernest Harold Baynes, the well-known naturalist, who will be remembered in Colorado for his efforts against the anti-vivisectionists several years ago.

Dr. M. Jean Gale has been appointed regional director of the Altrusa Club for the Rocky Mountain states.

The Annual Congress on Medical Education, Medical Licensure, Public Health and Hospitals will be held in Chicago, March 9-12, 1925.

Dr. W. S. Dennis has moved his offices to 130 Imperial Building, Denver.

Dr. Robert Levy is sick at St. Joseph's Hospital, Denver.

A daughter was born to Dr. and Mrs. W. M. Bane of Denver on February 18.

Dr. and Mrs. W. M. Greig of Denver are the parents of a daughter, born February 20.

AMERICAN CONGRESS ON INTERNAL MEDICINE

The ninth annual clinical session of the American Congress on Internal Medicine will be held in Washington, D. C., March 9-14, 1925.

Washington clinicians and investigators of attainment will devote the entire session to amphitheatre and group clinics, ward "rounds," laboratory conferences, lectures, demonstrations of special apparatus and methods, and the exhibition of unusual scientific collections. Civilian and governmental services are united in the aim to make the week useful and memorable.

Practitioners and laboratory workers interested in the progress of scientific, clinical and research medicine are invited to take advantage of the opportunities afforded by this session.

Address enquiries to the secretary-general, Frank Smithies, 1002 North Dearborn street, Chicago, Ill.

MEDICAL SOCIETIES

BOULDER COUNTY

At the annual meeting of the **Boulder County Medical Society**, January 15, 1925, the following officers were elected:

President—Dr. H. H. Heuston.

First Vice President—W. K. Reed.

Secretary-treasurer—M. L. Johnson.

Reporter—N. L. Beebe.

Censors—O. M. Gilbert, F. R. Spencer, E. B. Queal.

Delegates—(1) R. J. Groom, 1924-1926; alternate, H. H. Heuston, 1924-1926; (2) G. H. Cattermole, 1924-1927; alternate, R. B. Miller, 1924-1927.

GARFIELD COUNTY

At a meeting held in Glenwood Springs, February 2, the following officers were elected for the year 1925:

L. G. Clark, Glenwood Springs, president.

F. W. C. Henkle, Rifle, vice president.

L. R. Carson, Glenwood Springs, secretary and treasurer.

O. F. Clagett, Rifle, censor.

A. H. Hepler, New Castle, censor.

W. W. Crook, Glenwood Springs, delegate.

F. W. C. Henkle, Rifle, alternate.

Time of meetings, last Thursday of each month.

L. R. Carson, Secretary.

MONTROSE COUNTY

Officers for Montrose County, 1925:

President—Dr. I. Knoth.

Vice president—Fred Schermerhorn.

Secretary-treasurer—C. G. Brethouwer.

(The 1924 officers were re-elected).

PUEBLO COUNTY

Officers of **Pueblo County Medical Society** for 1925:

President—C. W. Thompson.

Secretary-treasurer—D. E. Hoag.

PROWERS COUNTY

The **Prowers County Medical Society** met in the Elks Banquet Hall, Lamar, in regular quarterly meeting at 6:30 o'clock, January 20, with the newly elected officers in charge, namely, Dr. H. E. Colby of Holly, president; Dr. W. E. Hickman of Wiley, vice president, and Dr. E. R. Mitchell of Eads, secretary.

Dr. Byron Blotz of Rocky Ford presented a paper on "The Economic Side of Our Professional Life."

Dr. Joseph Pestal of Lamar gave a paper on "Ductless Glands and Their Relation to Social and Physical Ills."

Dr. Robert M. Fullwider of Fort Lyon read a paper on "Laboratory Technique and Value of Laboratory Findings."

Dr. Wallace of Fort Lyon extended an invitation to hold the next quarterly meeting in his town. His invitation was accepted.

N. M. BURNETT.

NEW BOOKS

GUY PATIN AND THE MEDICAL PROFESSION IN PARIS IN THE SEVENTEENTH CENTURY. By Francis R. Packard. Svo. New York: Paul B. Hoeber.

Letters which give a picture of the period in France from 1636 to 1672, not only from the medical point of view but from the military, religious, political and courtly as well.

THE IDOL. By Dr. Cantala. 12mo. New York: The Botwen Printing Company.

Opium, heroin, morphine and their kingdoms considered by a physician who has worked with drug addicts.

EXERCISES IN PHYSIOLOGY. By Elmer Berry. 12mo. New York: A. S. Barnes & Co. \$2.

For normal schools and students of physical education.

POPULAR SCIENCE TALKS. Pamphlet. Philadelphia, Pa.: The Philadelphia College of Pharmacy and Science. \$1.

A series of popular lectures on eleven interesting topics.

CHANGES IN THE SIZE OF AMERICAN FAMILIES IN ONE GENERATION. By Ray Erwin Baber. Svo. Madison, Wis.: University of Wisconsin.

An investigation on scientific lines.

THE CHILD HEALTH LIBRARY. Pocket size. In box with book-ends. New York: Robert K. Haas, Inc.

Ten volumes, as follows: "Pre-Natal Care and the Baby's Birth," by Harbeck Halsted; "Babies; Their Feeding and Care," by Louis C. Schroeder; "The Neglected Age: The Children from 2 to 6," by B. S. Denzer; "Dangers of the School Age," by M. Alice Asserson; "Communicable Diseases of Childhood," by Stafford McLean; "Hygiene of the Mouth and Teeth," by Thaddeus P. Hyatt; "What Children of Various Ages Should Eat," by Lucy H. Gillett; "How Children Ought to Grow," by John C. Gebhart; "Psychology of the Child," by David Mitchell; "Educational Problems," by David Mitchell.

SMALLPOX AND VACCINATION. By Benjamin White. 12mo. Cambridge, Mass.: Harvard University Press. \$1.

History of smallpox and the methods of its control.

EYE HAZARDS IN INDUSTRIAL OCCUPATION. By Louis Resnick and Lewis H. Carris. Svo. New York: National Committee for the Prevention of Blindness.

A handbook for safety engineers, inspectors, committeemen, physicians and nurses.

LEOPOLD AND LOEB. By Maurice Urstein. 12mo. Chicago, Ill.: The Chicago Medical Book Company. \$2.50.

A psychiatric, psychological study.

AN ARGUMENT AGAINST BIRTH CONTROL. By A Mother. Pamphlet. Smithtown, L. I.: The Rambler Publishing Corporation.

The text of a debate by Mrs. Winter Russell.

RATS AND HOW TO DESTROY THEM. By Mark Hovell. Svo. London: John Bale Sons & Danielson. A handbook on methods of getting rid of rats.

MAGAZINE ARTICLES

THE MENACE OF THE DRUG ADDICT. By A. Wallis. Current History, February.

VISIT THE DOCTOR AND HE WON'T HAVE TO VISIT YOU. By M. K. Wisehart, American Magazine, March.

THE BUNK ABOUT WHAT WE SHOULD WEIGH. By Carl Easton Williams. Cosmopolitan, March.

CHILDREN'S TEMPER AND TANTRUMS. By Joseph Jastrow. Designer, March.

RECENT SCIENTIFIC DEVELOPMENTS. By Watson Davis. Current History, February.

THE ODD CHILD. By Angelo Patri. Delineator, March.

TO A SCIENTIST (Poem). By Maxwell Bodenheim. Bookman, February.

PSYCHIATRIC EXAMINATION OF PRISONERS IN MASSACHUSETTS. By Wenona Osborne Pinkham. American Review, January-February.

THE DRUG ADDICT. By Robert A. Schless. American Mercury, February.

FOOD PRESERVATION. Edinburgh Review, January.

OPIUM. By Dr. Frank Crane. Current Opinion, February.

AFTER "SAN"—A JOB. By Mary Ross. Survey, February 1.

THE FORTUITOUS PRESENT (Psychiatry). By Joseph K. Hart. Survey, February 1.

WOMAN'S BIGGEST JOB—THE HEALTH OF HER FAMILY. By William S. Sadler, M.D. Modern Priscilla, March.

FOR SALE: MEDICAL SHOW (story). By Kyle S. Crichton. Scribner's, February.

WATCH OUT FOR MEASLES. By Dr. Matthias Nicoll, Jr. Delineator, March.

THE ALIENIST IN COURT. By Joseph Collins, M.D. Harper's, February.

EVOLUTION AND THE DAILY LIVING. By Henry Fairfield Osborn. Forum, February.

IS THIS A CURE FOR TUBERCULOSIS? By Haven Emerson, M.D. Survey, February 1.

BOOKS RECEIVED FOR REVIEW

LECTURES ON PATHOLOGY. (Delivered in the United States, 1924.) By Ludwig Aschoff, M.D. New York: Paul B. Hoeber, Inc.

ANESTHESIA FOR NURSES. By Colonel William Webster, D.S.O., M.D., C.M. St. Louis: C. V. Mosby Co.

ABT'S PEDIATRICS Edited by Isaac A. Abt, M.D. (Volume V). Philadelphia and London: W. B. Saunders Co.

DISEASES OF THE HEART. By Dr. Henri Vaquez, translated by George F. Laidlaw, M.D. Philadelphia and London: W. B. Saunders Co.

THE PRACTICE OF PEDIATRICS. (Third Edition, Revised and Reset). By Charles G. Kerley, M.D. Philadelphia and London: W. B. Saunders Co.

Colorado Medicine

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EDITORIAL NOTES AND COMMENT

Bacterial Standards

The General Education Board has made a grant of \$24,000 to establish at the McCormick Institute in Chicago a collection of bacterial cultures, which may be used as types or norms. The collection will include not only pathogenic bacteria, but the bacteria used in the dairy and fermentation industries, and those important in agriculture. The collection will be similar to the type collection maintained by the British Medical Research Council at the Lister Institute.

Judicial Psychiatry

Judge William E. Thorpe of Greene County, New York, recently ordered mental examinations of ten defendants in his court.

There was considerable adverse criticism because of the expense entailed. The judge replied that it would be asinine for a physician to prescribe paregoric without first making an examination of his patient, and that the court would be equally remiss in prescribing a prison sentence without determining the mental condition of the defendant.

The logic is patent; therapeutics without diagnosis is quackery.

Diagnosis and Crime

The National Committee for Mental Hygiene, largely through the aid of the Rockefeller Foundation, has examined 10,000 prisoners in penal and correctional institutions. The examinations show 60 per cent of the delinquents to be mentally abnormal.

A study of admissions to Sing Sing Prison shows that 66 per cent of the inmates are recidivists, or repeaters in crime. In general, of course, the repeaters are those of inferior or abnormal mentality. The problem of controlling crime thus becomes a matter of diagnosis, with segregation where it is indicated.

International Biological Abstracts

The Rockefeller Foundation has appropriated \$350,000 to finance a new scientific publication, the International Biological Abstracts, which will cover the various fields of botany, zoology, bacteriology, etc., and will merge the two existing publications, "Botanical Abstracts" and "Bacteriological Abstracts."

The new periodical is financed by the Rockefeller Foundation for the next ten years. The first issue will appear in January, 1926.

Breathing Helium

Tests by the Bureau of Mines show that a mixture of helium and oxygen forms a respirable atmosphere similar to normal air. The new mixture offers the advantage to caisson workers that it reduces the time of decompression, and thus lessens the hazard from the bends.

With the helium-oxygen mixture experimental animals have been safely decompressed in one-sixth of the time required for the nitrogen-oxygen mixture that constitutes atmospheric air. It is hoped that helium-oxygen will enable divers to endure greater

pressure and thus enlarge the scope of their work.

Declaring Error

U. S. Comptroller General McCarl of Washington has rendered a decision that in the case of illness of a consular clerk a certificate by a Christian Science practitioner is sufficient to secure leave of absence.

The ruling is interesting, but it would be still more interesting to have an explanation of the psychology of the Christian Science healer who can write a certificate of illness, when his therapy consists in denying the existence of disease. Surely the written declaration would have an ill effect upon the patient and cause a relapse of the non-existent malady.

A Pasteur Memorial

A committee of prominent Chicagoans headed by Dr. Frank Billings is endeavoring to raise \$100,000 to establish a monument to Pasteur and to ensure a research scholarship for American students.

The Hearing Hand

Under the auspices of the National Research Council, Dr. Robert H. Gault of the Department of Psychology of Northwestern University is conducting experiments with the deaf, in which speech is perceived through vibrations imparted to the palm of the hand. He has succeeded in teaching five subjects to identify fifteen sentences, each of ninety words of one syllable. Speech is interpreted by learning the combination of vibrations felt upon the skin.

This is pioneer work in the perception of speech on new principles, and its practical value is yet to be determined.

Mongolian Mice

Impressed by the resemblance between cretins and mongoloid idiots, Dr. Charles B. Davenport, Director of the Department of Genetics of the Carnegie Institute, has undertaken experiments with mice. He has learned that the offspring of a mother mouse are unusually small, if a portion of her thyroid gland is removed before she gives birth to her young.

The experiments, of course, do not solve the problem of the mongolian idiot, but they open a field of research.

The Birth Rate

Dr. R. M. Harper of the Florida State Geological Survey points out that the birth rate and the death rate of the country will be abreast of each other in thirty or forty years, if they both continue to decline at their present rates. The decline in the birth rate commenced about a hundred years ago and has steadily continued.

Platinum

Platinum, so much used in scientific work, has become expensive because the Russian supply has been virtually cut off, and because much of the diminished supply finds its way into jewelry.

Yet science is solving its own problem, and an Austrian chemist has introduced laboratory vessels made of an alloy of aluminum and silver, and plated with platinum black by a process of hammering or rolling.

Wood Alcohol

The National Committee for the Prevention of Blindness issues a caution against simple tests for wood alcohol in "hooch." Only through a careful chemical analysis can one determine whether or not wood alcohol is present. Simple and instantaneous tests are fallacious and give a false sense of security.

A Good Health Year

According to the Metropolitan Life Insurance Company, 1924 was a record year for good health. It is the first year in which all the principal causes of death registered a decrease. The death rate among sixteen million policy holders was 8.5 per 1,000.

Expensive Coffins

According to a recent issue of Better Times, the people of the United States spend annually 65 cents per capita on coffins and 11 cents on health service.

THE UNIVERSITY MEDICAL SCHOOL AND THE COMMUNITY

Abstract of an Address by George E. Vincent, President of the Rockefeller Foundation, at the Dedication of the New Buildings of the Medical School of the University of Colorado, Denver, January 23, 1925

This ceremony may be thought of in several ways. It would, for example, be fascinating to trace the origins of this medical school back to Egypt, Greece, Rome, Spain, Italy of the Renaissance, France, Austria, northern Europe. Again we might show in some detail that these laboratories and hospitals are parts of an international system of medical education and research. Colorado is thus by printed page and by migration of scientists a receiving and broadcasting station in a world-wide development and interchange of scientific knowledge and technique.

But the local, state, and regional significance of this occasion makes even stronger appeal. The citizens of Colorado and of that great area which looks to this city as its commercial, professional, social and cultural capital, may well feel pride in the forward step that is celebrated here today. The intelligent plans of the University, supported by the enlightened policy of the state government, find expression in modern, well-equipped and competently manned laboratories and in publicly maintained hospitals of high grade.

Here the sick, who can pay nothing or only a part of the cost, receive the best of care under the most favorable conditions. Here medical students are given modern training as physicians and scientists. Hither also practicing doctors will come for advanced courses that will keep them abreast of progress in knowledge and technical skill. How admirable, economical, and effective an arrangement!

The hospital policy of the state is to be especially commended. Colorado aligns herself with other states, notably Michigan and Iowa, which assemble in a specialized University-controlled hospital needy sick from the entire commonwealth. A budget made up of legislative appropriations, county funds and patients' fees supports the institutions which at the same time provide excellent medical and surgical care and favorable facilities for education. Many endowed universities which are struggling

to maintain the only kind of hospital in which satisfactory teaching can be done, namely one completely under university control or its equivalent, have reason to envy the University of Colorado.

Too much cannot be said in praise of the wisdom which makes a psychiatric hospital both a state and a university institution. The effort to avoid mistaken or premature classification of persons as insane, the more explicit recognition of mental disturbances as diseases to be studied and treated, the determination to give larger place to modernized psychiatry and neurology in the medical school course are significant signs of the times. Sufferers from mental maladies have too long been victims of ignorance and stupidity. The medical profession has too long fixed its attention too exclusively upon ills of the body and thus given opportunity to the quack and the fanatic to exploit the maladies of the mind.

In addition to the more patent advantages which the community and state derive from the possession of a modern medical school, there are other gains of a less obvious kind. The constant prosecution, for example, of scientific medical research emphasizes the place not only of applied science, but of pure science in the life of today. The scientific method itself is seen to be not a form of magic or of haphazard trial, but a patient, painstaking, orderly investigation, discovery and classification of verified facts interpreted by controlled imagination and logical reasoning into general laws.

A public which has at least a general idea of the true meaning, limitations, and spirit of the scientific approach to the facts of the body and mind will not expect miracles and be disappointed because complicated and baffling problems are not quickly solved. Too often people give no thought to medical research until a critical situation arises, for example, an epidemic of influenza or of infantile paralysis, and then in panic turn to the medical scientists with demands for the instant discovery of causes and of means of cure and prevention.

Then, too, the presence in a community of highly trained, traveled, cosmopolitan laboratory scientists and clinicians is a protection against provincialism, is a cultural asset and makes clearer the need and role of the expert in our social order. The stimulating influence upon the local, state and regional medical profession is extended in various ways to the intelligent laity and tends to affect the public generally.

It should be clear, that the services and obligations of the school and the community are reciprocal. The institution, by its achievements, must convince the public of its value, while upon the continued support of this school by the citizens of Colorado, the future prosperity and usefulness of this medical center to a great degree depend.

More than money will be needed. It is the way citizens think and feel about scientific work, about scientists themselves, about the medical profession, about the ideals which they seek to realize that will largely determine the future success, prestige and social value of this school and hospital; largely, but not wholly, for there are national and world groups of scientists who will have something to say.

There is much cynicism abroad about the popular understanding and appreciation of science. The willingness of a few legislatures to vote on evolution, the gullibility of whole populations with respect to quack remedies and fraudulent stocks, the too ready acceptance of campaign sophistries are cited as evidences that the people are uncritical and powerless to protect themselves against propaganda.

But especially in this splendid state institution of science one need not despair of democracy. Nothing is to be gained, however, by shutting one's eyes to the fact that unless there can be found in a community leaders, men and women of individuality with trained minds, discriminating judgment, and courage, who understand, explain and extol the methods and spirit of modern science, little progress will be made.

If the university graduates—lawyers, teachers, successful business men, clergymen—if women of prominence in social and professional life, in clubs and philanthropy,

accept uncritically "Sunday-supplement science", unverified testimony about "cures", blatantly advertised remedies most of which at best are useless, and put themselves in the hands of doctors of dubious standing or of miscellaneous healers, what hope is there of creating a congenial environment for true science and its devotees?

It has been said that the object of an education is to protect one against being gulled. The educated person knows that he can have a trustworthy, first-hand mastery of only a small fragment of human knowledge and skill. For the rest he must rely upon others. He fully recognizes this dependence upon experts. He uses his intelligence, not in a vain and absurd attempt to decide for himself, but in selecting those whose advice he will accept.

This reliance of the intelligent upon specialists or experts lays a heavy burden, scientific and moral, upon the latter. There are experts and "experts". The popular distrust of experts is significant of several things. In a democratic society, one who professes to know more than the average man, is naturally resented and disliked. Not all who pose as experts are entitled to the name. Sometimes persons competent in one field venture to offer advice about quite different subjects in which they are only laymen. The public too often fails to discriminate between the pretender and the qualified authority.

This school will be influenced by the attitude this community takes toward the representatives of modern science. If the men and women who give themselves to service here feel that what they are doing in increasing knowledge and in applying it is intelligently appreciated and genuinely valued, they will be stimulated, encouraged and content. If by any unlikely misfortune they were to find Colorado indifferent, sceptical, cold or contemptuous, the best of them, as occasion offered, would slip away one by one to a more congenial environment.

In the same way the community will influence the school by the type of doctor that is most admired, praised and rewarded in city, state and region. Though it does

its best, the institution cannot turn out the kind of graduate it prefers if this kind differs too widely from the prevailing conception of what constitutes competence and success in a physician.

If the leaders, they who help to set the standards in doctors as in other types for their fellows, exact and praise financial success, gratification of patients' whims, a charming professional manner, the depreciation of these "newfangled" ideas—or what is worse, the inept exploitation of them—an eagerness for operations without the check of diagnosis by a competent consultant, a specialism quickly acquired by a short postgraduate course or two pursued in a distant city, a protection of patients against quarantine by the health authorities—then the school will find its task more difficult.

But if the community honors and trusts doctors who put character and professional integrity first, who do not hesitate to say frankly "I do not know" or "I am not sure", who try to keep abreast of scientific progress, who carry the scientific method into their daily practice, who refuse to exploit for their own gain, the weaknesses and credulity of patients, who seek adequate preparation before they profess a specialty, who carry their full share of hospital, dispensary and personal care for the needy sick, who loyally support community efforts in hygiene and preventive medicine—then the school will find its labors lightened and its ideals furthered.

The oversimplification in the differentiation of these types may easily mislead. Human personality is complex; motives are mixed. All good qualities and all bad do not come in neatly separated bundles. They are variously assorted. Judgment must try to determine the predominant and guiding purpose of a given personality. Nor is it to be inferred that the scientifically trained and conscientious doctor is doomed to poverty, or the cleverly accommodating or unscrupulous practitioner sure of affluence.

The future growth, service and influence of this school then will depend upon many factors; adequate funds, competent personnel, vital connection and intercourse with

the whole world of scientific medicine, students of ability, character and promise, ideals of care for the sick, scientific research, thorough training, increase of popular intelligence about medicine, curative and preventive.

Of all these influences the attitude of the people of the State of Colorado will play a fundamentally important part. Who can doubt that a public which has approved the opening of a new era in this school's history will provide a sympathetic, intelligent, stimulating environment for its future development?

Tuberculosis now claims approximately 100,000 lives a year in the United States.

There are at least 750,000 open, active cases of tuberculosis in this country.

Oil of catnip is the most effective lure used by the employees of the Biological Survey in trapping mountain lions.

Of the 2,507 children receiving permits for full time work in Milwaukee only 18 per cent of them were free from physical defects.

A scholarship fund has been set aside by the Rockefeller Foundation for work in mental hygiene.

Freshly cut silage gives off a gas, carbon monoxide, dangerous to workers in unventilated silos.

The National Health Council, 370 Seventh Ave., New York City, issues twenty pocket size books which give authoritative information on many phases of human health.

A League Against Cancer has been established in Spain.

A welfare center for the mentally ill has been established in Munich, Germany.

The death rate in 1923 from typhoid was 6.8 per 100,000 population, by far the lowest ever shown for the registration area.

Canning peas destroys a large amount of their vitamin content.

Every state in the Union has a college of pharmacy.

Automobile accidents, drowning and falls, are the only causes of accidental deaths exceeding in number those due to fire.

Birds rarely die natural deaths.

Synthetic cocaine has recently been produced in Germany.

One man in twenty is color-blind. Color-blindness affects only one woman in a hundred.

THE DEVELOPMENT OF ORGANIZED CLINICAL TEACHING*

HUGH CABOT, Dean University of Michigan Medical School

We are here today to congratulate our colleagues of the University of Colorado on the completion of their equipment for the teaching of modern medicine. We may also congratulate the State of Colorado upon having secured through its constituted authorities a guarantee that the training of those who would heal the sick be not allowed to lag behind in the development of education. That the State should have seen so clearly and builded so well is the best reason for believing that education is holding its high place among the ideals of American civilization.

It would be superfluous to point out that the plans here carried out are the most modern conceptions of the obligations of the community in this field. It signalizes the general acceptance of the view that the teaching of medicine is distinctly a university business and that schools of medicine apart from universities are likely to lead a rather precarious existence. This school has at its back the atmosphere and power of the university and is yet so constructed as to place at the disposal of the student all of the necessary component parts in a well balanced medical curriculum. It will not, perhaps, be out of place to recall that what we now regard as a well balanced medical curriculum which teaches in their proper relation both the science and the art of medicine has not existed for any great length of time. The science and the art have not always been bed-fellows. Their development was in fact quite separate, and in Europe, at least, the universities at one time taught the medical sciences and entirely separate schools gave instruction to those who were expected to practice medicine. The great strength of the German contribution to medicine was, in the earlier day, in the medical sciences and from these the clinical teaching was an outgrowth added gradually and piecemeal as time went on. It thus resulted that even in modern times,

the outstanding development in medicine under the German system was on the side of the medical sciences. In Great Britain during a somewhat similar period, the outstanding development was on the clinical side and the epoch-making figures in British medicine were essentially clinicians. The earlier developments in America followed most closely the line already taken by the British school and our earlier medical schools were strongest in their clinical aspects. It is not more than fifty years since all the teachers in the medical schools of this country either were or had been clinicians. I can, myself, remember the days at Harvard when anatomy and physiology were taught by Oliver Wendell Holmes, long a practitioner of medicine and co-discoverer with Semelweis of the origin of puerperal fever. Later, Henry P. Bowdich abandoned his practice to become Professor of Physiology and Thomas Dwight, at first a surgeon, became Professor of Anatomy.

With the growth of the medical sciences, many universities established courses covering the subjects, but their students must then seek another school having hospital affiliations in order to finish their training. Many of the schools of this period were established by groups of practitioners themselves frankly clinicians who were concerned to see that the patients under their care were wisely used for the furtherance of medical education.

About a quarter of a century ago, frankly under the influence of the German school, the medical sciences were concentrated in the first two years of the course. This constituted a fairly radical change in the then existent medical curriculum and served to put the science, as contrasted with the art of medicine, upon a firm foundation. No one will, I think, be disposed to question the view that this alteration in the course was of outstanding benefit and that under this plan, medical education in this country has undergone profound changes for the better. It is not necessary to assume that this change was an unmitigated blessing in

*An address presented at the dedication of the new buildings of the University of Colorado School of Medicine and the Colorado General Hospital, Denver, January 23, 1925.

order to believe that it has been a most important factor in the developments of the last fifteen years.

It is undoubtedly true that during this period and related somewhat to the concentration in the first two years, some dissatisfactions have arisen with the present arrangement. For these the concentration cannot be held wholly or even largely responsible and they arose from collateral developments which came about during the same period. These developments have affected clinical teaching more than preclinical and it is to this aspect of the subject that I desire particularly to call attention.

During the period above referred to, and at the time when the concentration of preclinical work in the first two years was in effect, there came about from entirely other causes a considerable diminution in the number of medical schools. The most important of these causes were economic. Partly due to the great increase in the expense of teaching the medical sciences in a proper way, and partly to increased expense in other directions, the smaller and less securely financed schools began to fall behind and offer a grade of teaching below the standard properly required. There resulted a disappearance and consolidation of medical schools, and for this result the report on medical education in this country by Mr. Abram Flexner and the wise and patient efforts of the Council on Education of the American Medical Association were most importantly responsible.

The diminished number of schools had the effect of concentrating students in the remaining ones and thereby considerably increasing the demand upon their clinical facilities. At this same period there existed a considerable number of universities giving a two years course, whose students, at the end of that period, must be taken over for their clinical years by other schools; again, an increase in the amount of work thrown upon the clinical teachers. Rapid development in the field of the medical sciences of methods which were of necessary application to the practice of medicine, had the effect of demanding of the clinical teachers a more profound and

up-to-date knowledge in these fields. At the same time appeared the growth of research in the clinical departments: work which had previously been carried on chiefly, if not entirely, in the laboratories of the medical sciences and having relatively little opportunity in connection with the clinical departments. This development again had the effect of requiring increased staff of varied characteristics requiring oversight and direction from the clinical teachers.

Furthermore, as a result perhaps of the growth of the medical sciences and of the necessity of applying laboratory tests and research methods directly to the patient, the field of the didactic lecture as a method of medical instruction became seriously narrowed. The clinician could no longer satisfy either his conscience or his colleagues by this method and inevitably medical classes were divided into sections in order to promote closer contact with the patient and to permit the application of more exact methods of study, all of which had the effect of increasing the complication of the teaching of clinical medicine.

It thus appears that all through this period there has been a steadily increasing strain from all sides upon the time required of the chiefs of the great clinical departments in order satisfactorily to teach the students, to oversee assistants and associates engaged in research, and to keep themselves reasonably abreast of rapid advances. This has tended to require modification of the method by which the great clinical departments could be satisfactorily carried on.

The great clinicians of an earlier day, whose teaching marked the mile posts in medical history, were almost without exception in this country and in Great Britain busy practitioners or much sought consultants. Their influence upon the practice of medicine was tremendous, but the changes and advances in medical knowledge have made their development more and more difficult and their perpetuation at least precarious.

With the increasing demands of teaching, supervision and actual care of patients in the hospital wards, there came about what

might be called a "divided allegiance" under which the clinician was torn between two commanding responsibilities: that to his practice, and that to his teaching. Under this division one party or the other was likely to suffer, and as the complication of clinical teaching shows no signs of diminishing, it seems hardly possible that the type of instruction given by the great clinicians of an earlier day will be suited to present requirements or those of the future. It is, I believe, increasingly apparent that the chief of a great department, such as medicine or surgery, in a modern medical school, must devote most of his time to his students and his department and relatively much less time to his patients and his practice.

The problem with which we are, as it seems to me, today faced is whether we are large-minded and far-seeing enough to develop in this field what may come to be regarded as an "American System" of clinical teaching. In the building up of such a system we shall unquestionably have to face the influence of the German School on the one hand and the British school on the other, though the distinction between these two types of clinical teaching may be somewhat less sharp than it was half a century ago. The outstanding ideal of the German school is that clinical medicine is but the natural and necessary corollary of the medical sciences and that clinical teaching should not importantly depart in method and atmosphere from that of the medical sciences. It is at least suggested that the German school of thought in regard to the clinical departments of the university is that the hospital should properly be regarded as the laboratory of these departments and that the patients are in some respects similar to the experimental animals of the medical sciences. That this system is calculated to produce a very high degree of scientific thinking as applied to medical problems, will be obvious, and by this method scientific progress will unquestionably be fostered.

The other influence, that of the British school, will focus upon the patient not so much as an experimental animal, but rather

as a human individual. Their method of teaching the practice of medicine has outstanding advantages in the development of capable practitioners, and it will unquestionably produce more people capable of caring for the sick in an acceptable manner than will the German system. On the other hand, to the extent that it lays stress upon the clinical aspects of disease and upon the individuality of the patient, it may suffer somewhat in the application of new facts in science to the problems of disease. It thus appears that each of these systems has its strength and its weakness when applied to our condition, and it may fairly be doubted whether any system developed in another land can be taken over as an entity and prosper on American soil.

Here appears to me to lie America's opportunity. Provided we have capacity, we are unquestionably in a position to develop a system of medical education peculiarly suited to the ideals of our civilization and to our national development. The accidents of the war, from which we have greatly benefited, make this a time particularly favorable to such a development. If we have but the wit to plan wisely and carry out boldly, we have both the means and the men at our disposal. But, I repeat, it is unlikely that a system which will be wholly suited to our needs will be closely modeled upon any other. Here flourishes as perhaps nowhere else, the ideal of service, and I would refer the doubter to the heights to which this country as a whole rose during the war. We have also among our foremost ideals the rights of the individual, and in fact, our form of government is predicated upon that assumption. No one, I take it, will assert that our democracy is an efficient method of government, but most of us firmly believe that what we lose in efficiency we gain in the development of the individual.

In the development of an American system of medical education we might dream of the medical school of the future as a great service station, dedicated to the promotion of health. It will not lack in devotion to science, but will make that science the servant and not the master of its growth.

It will keep its eye focused upon the education of physicians who are at once broad in their grasp of public questions and devoted in their service to private persons. To discuss the whole development of such a school would take me into fields in which my capacity might well be doubted and would require time which you may well be spared. If my ruminations are to be worthy of any consideration, they must be confined to the clinical aspects of such a system. For reasons which I have touched upon above, it seems to me quite clear that the chiefs of the great clinical services of the medical school which is now in process of development cannot be of the same type as those to whom we have looked up in the past. The amount of time and the breadth of knowledge now required to fill these positions acceptably are incompatible with a busy practice or driving work as a consultant.

There have been, and still are, two quite opposite views as to the most desirable characteristics to be sought for in those who are to be placed in charge of the fundamental divisions of clinical work. One view holds that the teaching of the medical student will be best promoted by the introduction of what might be called a "clinical scientist". The other view holds that if we are to have as our main objective the turning out of practitioners, they can only be taught by one skilled in the practice as opposed to the science of medicine. The first view holds that such a chief must have a profound knowledge of the science of medicine; that he must be able in his own person to link up the basic sciences with the problems of diagnosis and treatment. It further holds that he must be a man capable of independent research and also able to supervise and prosecute, through the medium of his assistants and associates, work in the "No Man's Land" of science. It essentially takes the view that the hospital is a clinical laboratory and that the chief should have the instincts and capacity of a scientist. The second view lays stress upon the requirement of the community that we shall turn out yearly from our medical schools a considerable number of capable, young-

sters who, amid the driving pressure of active practice, will be able to keep both their feet and their heads for devotion to their patients. It stresses particularly the fact that there is and always will be an art as well as a science of medicine; that the patient is not and cannot be made into a laboratory animal and that many of the attributes of the worker in the fields of research peculiarly unfit him for a sympathetic understanding of the disturbances of a human being. It further stresses the idea that a knowledge of the art of medicine can only be produced by prolonged experience in the field and that the most effective teaching of this art comes not so much from what the teacher says as from what he does. We may perhaps be willing to admit that the things that we remember about the great clinicians under whom we sat are less their words than their deeds.

Now it may well appear that these two views are entirely incompatible and in fact, meet in head-on collision. To satisfy the requirements of the first view we must have in charge of our great clinical departments well trained scientists, perhaps of the type which a generation ago was rarely seen in the clinics of this country, but most often to be found in the laboratories of the medical sciences. These men are now to be found in increasing numbers associated with the great departments of medicine and surgery. They are outstanding people with unquestioned capacity to push forward into the borderlands of knowledge. They show immense devotion to their ideals but are not well suited to the requirements of active practice. They are in fact rather of the academic type. They are likely to thrive in the more or less cloistered seclusions of a university atmosphere and there, perhaps, develop to their best.

The proponents of the second view appear pretty uncompromising and will require an outstanding practitioner. They are inclined to risk the other attributes and depend upon assistants and associates to link up the science with the art of medicine. Such people are not, properly speaking, of the academic type. They are likely to chafe under its restrictions and in not a few

instances, show definite individualistic tendencies.

If we accept the first view we must follow intelligently in the footsteps of the German school, while if we accept literally the second view, we shall follow closely the British school.

Now it appears to me that neither of these views is wholly sound. There is no warrant in experience for the view that the clinical scientist of the German type will ever be capable of training the type of physician to which we may well look forward. I confess to grave doubts as to whether departments planned upon this basis will prove permanent. I suspect that this type of teaching will be found unsuited to our civilization and will not stick. The ideal of service is not sufficiently prominent. These men are more likely to be servants of science than servants of the sick man. The development of American medical education will demand more interest in the patient. There will arise an uneasy suspicion that the clinical scientist might perchance develop an absorbing interest in disease and at times present to his students cases rather than patients. There is, perchance, some danger that students so trained might take the extraordinary view that disease has an existence of its own and overlook the fact that it is merely the reaction of a human individual to an insult, whether that insult be a "bug" or a ball bat. The practitioner watching this development as an outsider may perhaps doubt whether the straight jacket of academic medicine will fit comfortably upon American ideals and he may fear that from such an arrangement might develop the academic mind, that curious detachment from the world which seems to find fertile soil in academic shades.

I may as well frankly confess that some such fears have flitted uneasily through my mind and I am driven to the conclusions that the American type of medical education will demand, for the development of the great clinical departments, the capture and perhaps domestication of real practitioners. That such people will be easily found in large numbers, I do not pretend to believe, for the amount of time which

must necessarily be given to teaching and to organization is great. To obtain such people at all, these positions must be made attractive, but this does not seem to me impossible. The "divided allegiance", to which reference was made above, must, of course, be done away with and they must devote the major portion of their time to the hospital and the student. This, however, does not require that they be tied hand and foot by rule or by regulation. It is, I believe, unwise to confine them in their practice to the care of the charity or the indigent patient. I might go further and say that such a limitation appears to me unsafe and likely to react upon the teacher and consequently decrease his value to the institution. If we insist, as I think we may, that they shall be capable practitioners, skilled in the art and conversant with the science of medicine, we must see to it that they do not lose touch with the world, for if there is one thing more certain than another, it is that the capable practitioner must have worldly wisdom.

The discussions of what has been referred to as "full time" seem to me often to have concerned themselves with non-essentials. If by such a term it is meant that they shall literally devote their whole time to the teaching of students, to the development of research, and to the care of indigent patients, then I believe we shall miss the highest development of American medicine, for we have, in such an arrangement, sown the seeds of disintegration. It has sometimes been assumed that the precise arrangements made with the chiefs of these departments could be reduced to a plan or system which, having been evolved, could be widely applied. With this view I am inclined to disagree. There are too many unknown factors in the equation. No two medical schools and their allied and associated hospitals have precisely the same problems or live in the same atmosphere. No two individuals giving promise of development into capable chiefs are even remotely similar in their requirements for sound development. Certain things we must have. Briefly, and perhaps too dogmatically, they may be stated as follows:

We must have men of broad experience in practice and wide knowledge of their work. They must be prepared to devote a large share of their time to their academic duties and they must have personality with which to influence their students. If it appear that such requirements are too broad and that it is sheer folly to expect to obtain such people, it may be pointed out that there comes a time, often not too late in the career of many an active physician, when he comes to believe that his greatest service to the world will be not through his ministrations to individual patients, but through his effect upon students, associates and colleagues; that he may turn, so to speak, from the particular to the general and thus use his accumulated store of wisdom more effectively. I do not at all despair of finding a sufficient supply of such people, particularly if we have the wit to present to them opportunity which is attractive in its efficiency. The particular agreements which we may see fit to make with them seems to me a wholly secondary matter. These will be influenced by local conditions and by personal characteristics and may safely be allowed to settle themselves if only we do not lose sight of the main objects which we seek to attain.

In closing, I am tempted to seek to allay a widespread fear among the medical profession, to whose ranks we are seeking to add capable successors, that this contraction, if such it be, of the field of activity of the clinical teacher is a step towards some system by which the state will assume power over the practice of curative medicine. Were such a plan calculated to produce such a result, no one would fear it more than I do, but I confess to believing that the result, if this problem is wisely handled, will be precisely the reverse. What the medical profession appears to fear is the misguided action of the community. Now, the community is concerned only to see that it is properly supplied with capable practitioners. It is, I believe, unthinkable that the outstanding individuality of the American people would seek refuge in any form of socialized medicine. It is precisely the reverse of the tendencies which we have con-

tinuously shown for more than a hundred years. If the medical schools are so guided that they do in fact turn out a suitable number of capable physicians, the community will be less rather than more inclined to experiment with service supplied by the state which has been so notoriously an unsatisfactory source of service. If there be any danger of the socialization of medicine it will come, as I think, from the profession itself. It can proceed only from our failure reasonably to supply the demands of a good natured, idealistic and high minded public. The force will, I think, never come from the community itself and if we see to it that their needs are properly supplied, we shall have little cause to worry over the result.

SECRETARY'S NOTES

The annual session of the American Medical Association is to be held at Atlantic City, May 25-29. Largely through the efforts of the Colorado State Medical Society, following a resolution submitted by Dr. Moleen at our last annual session, the railroads have consented to alter the date of sale of excursion tickets so that they may be purchased in Denver on May 22d. Colorado is thus favored, while members at points on the Pacific Coast will probably be unable to use the excursion rates in time to make the first day of the session.

In the May issue of Colorado Medicine the Secretary hopes to furnish a complete schedule of train service and railroad and Pullman rates from the larger points in Colorado to Atlantic City.

Annual reports have come in from quite a number of societies and the Secretary wishes to extend his thanks to those who have responded. Other society secretaries will please bear in mind that April first is the final limit for these reports.

F. B. STEPHENSON,

Secretary.

THE PROPOSED DEVELOPMENT IN PUBLIC HEALTH WORK IN COLORADO, WITH PARTICULAR REFERENCE TO THE FUTURE OF THE STATE BOARD OF HEALTH*

TRACY R. LOVE, M.D.
DENVER, COLORADO

The Colorado Department of Health is under the direct control of the State Board of Health, and the fact that the Colorado Department of Health is at present inadequate for our needs need hardly be called to your attention. However, I do want to say that the Colorado State Board of Health has now a definite program, a progressive public health program, to which we invite your attention, and we earnestly hope that during the next legislative session the Colorado State Medical Society collectively and individually will assist us in building up a better and larger Department of Health. Of course, that involves the question of more funds. Now, do not think for one minute that the medical profession has no control over the legislature, or even over what a governor might wish to do in regard to the appointment of members of a Board of Health. May I remind you that the governor appoints each two years three members to the Board of Health to serve a term of six years. If you, when the time comes, will let your representatives and senators know that you are interested in progressive public health work, that you personally expect him or her to give to the state the funds which are necessary to the enlargement of the Department of Health, and the betterment of the Department of Health, they will listen to you.

Now, briefly to outline the things as we see them: first, understand that I am known as a part-time health officer. I am paid a salary to devote such time as may be necessary to perform the usual work at the Department of Health, such as looking after letters of all sorts, seeing to it that the work in the various departments is properly carried out, answering questions, looking up the law, directing this one and that one as to the proper method of procedure to help them solve their problems. "Managerial" is the word, but I spend most of my

time trying to make a living in private practice. I have yet two years to serve on the State Board of Health, and what I have to propose to you now means that I am more interested in the development of a greater public health program in this state than I am in receiving any further salary from this state. I hope that we can secure through legislative action a full-time officer, a man who will give all his time to public health work in this state. I am not a candidate for this position! In developing such a department, I hope that we will see to it that such a man will be a highly trained specialist in public health administration. We have served our apprenticeship as a state with a part-time health officer. We must now put in a full-time health officer, a man who has received a degree of Doctor of Public Health, a man who has devoted time to administration work in public health, and a man who will receive a salary which will make it worth his while. Also, it must be so arranged that such an individual, at the end of every two-year year period, is not going to lose his position on account of the change of the political color of the state. Those things must be taken carefully into consideration in all laws.

Besides having a full-time health officer, we need a Department of Sanitary Engineering. We have never had such a department. Through the courtesy and activity of Mr. John Connors, the plumbing inspector, and through the work of Dr. Morgan, our epidemiologist, a medical inspector, we have managed to do a certain amount of work along the line of sanitary engineering. Through the cooperation of the Rockefeller Foundation Fund, we have at present the services of a sanitary engineer, to demonstrate to this state the necessity of a sanitary engineer as a part and parcel of the State Board of Health, and that sanitary engineer today is busy going all over this state. He has been called out into Routt

*Read at the annual meeting of the Colorado State Medical Society, October 7, 8, 9, 1924.

county, he has been called into San Juan, he has been all over Denver, and he is busy every minute. Many towns in this state sent for him as soon as they found out we had such a man, asking that he come and help them solve their problems of how to prevent pollution of their water supply, how to take care of their sewage disposal plants, how to avoid contamination of streams, and similar problems. We need such a man all the time. He is making surveys of our water supply, which water is to be used on interstate carriers. That is part of the program initiated by the United States Public Health Service. We cannot afford longer to be without a state sanitary engineer. Such a sanitary engineer is already busy enough so that he can hardly keep up with it. If we had a sanitary engineer at a salary of \$3,000 a year, we would also have to have a stenographer at a salary of at least \$1,200 a year to look after his work. In addition to that, we want all of the chemical laboratories and all of the bacteriological laboratories in Denver. Dr. Eckley of Boulder assures me that he is willing to give up that part of the chemistry which he has been doing which refers directly to the State Board of Health. We want right here in our laboratory, which has already been furnished to us, all of the chemical analysis of food and drugs, and the water analysis; it will save time, and it will aid much in the efficiency of the work from the standpoint of coordination. I have not meant to imply in the slightest that the work has not been well done or thoroughly done, but from the standpoint of correlation it is much better to have all of the chemical work done right here. We will then require for that an efficient chemist, and a technician. That will mean that the \$2,500 now being sent to Boulder for that work will simply be transferred to another department in the state. We naturally will have to increase that to a moderate degree, because we cannot expect to get a full-time man for that department alone, where at present they are being paid through the funds at Boulder, so that I think it would be fair to say that we will need \$4,000 a year. Let me put it another way: we will need \$2,000 in addition to

what we are already receiving for work of that character.

Our statistician attempts to keep track of the records of all the births and deaths that occur in this state. She tabulates the deaths according to the United States formulas, and yet we are constantly being called upon to furnish information of one sort and another relative to births and deaths, which we cannot give, because one person cannot do the work. From 14,000 to 15,000 births a month are the records sent to our office. The deaths, in a general way, correspond. The total figures are increasing from year to year, and yet we have just the same one individual to do it that we had five or ten years ago. We need an assistant, someone who can not only assist our statistician, but who can go out about the state to aid local registrars in tabulating, or rather in finding out the births that occur. We have not been able to furnish the proper percentage of birth certificates, and are consequently not in the birth registration area. We hope, however, within a year to be able to handle that, and we certainly can if we can get a larger amount of money for the work of the State Department of Health.

We need a Department of Child Hygiene. Now, we have at present, you know, a State Bureau of Child Welfare. We need under the State Board of Health a department which, among other things, will aid other institutions in their public health work, which will examine and will teach midwives to do better work in their various communities. We need a division of public health nursing, and that might well be placed in a division under child hygiene, because in such division part of the publicity work will be to teach individuals, as well as communities, public health and protection to themselves, and that work of teaching must be done partly through the Division of Child Hygiene. We need more inspectors in the food and drug department, because we only have three men to cover this whole state, and we need at least two more. We need \$10,000 for a Department of Rural Sanitation, and such a department can be correlated with many other departments

under the State Health Department, and can work with outside agencies, and in many ways can better the conditions of the outlying districts. We need it there more than we do in our larger cities. And if we can get an appropriation from the legislature for a Department of Rural Sanitation, I can promise you that the Rockefeller Foundation Fund will match us dollar for dollar in our work. It will mean we can put in county health units, full time county nurse, county health officer, full time sanitary inspector, and we will put Colorado on the map when it comes to public health work.

DISCUSSION

Henry Sewall, Denver: In a very long experience this is the first time I have ever heard a health officer, paid by the state, demanding or advising that there be a change in the conduct of his office and appointees which would directly abolish him as an executive individual. It is very fine. We do need a graduate in public health to conduct sanitation affairs. If the State will take the initiative, and show what benefit will come from putting money into the right officer, one endowed with a technical education in public health, such as may now be obtained in several universities, one who will spend all his time in sanitary work, perhaps the City of Denver may take a hint and adopt this course of true economy. At present, it is impossible to think of any such thing.

R. P. Forbes, Denver: I am sure that every member of the State Society appreciates this rehabilitation program that Dr. Love has outlined, and will back it up with their legislators, because that is where the work is most effective, in your own home town.

I simply want to speak about one matter, one phase of the public health work, which is new to Colorado in the last two years, and that is the "Shepherd-Towner Fund", which, as you know, is administered here under the Child Welfare Bureau, which is part of the Department of Public Instruction. As you know, the last Legislature appropriated \$5,000, which was matched by \$5,000 of federal money, with an additional \$5,000 to each state, making \$15,000 for this work. Now, you men have a right to know what has been done in your own county. We hope at the next Legislature to ask for the full quota, which Colorado is entitled to, which will be about \$12,000. We believe that the laity and the profession will demand that of the Legislature, on the basis of what we already have been able to accomplish. The plan of public health education under the Shepherd-Towner Fund, is as follows: First, the birth registration problem. As Dr. Love has said, we are in the black area of the map. Utah on the west, and Kansas on the east, are in the white on the map, and Colorado in the black. We have to raise our registration from 75 to 90 per cent.. We attempt in our health conferences, teaching mothers, in contact with physicians and midwives, to get births registered. It is a disgrace. Second, the maternal mortality. The United States is at the bottom of the list of civilized nations in the

deaths of its mothers at childbirth, only Scotland, France and Chili having higher rates than the United States. Colorado has attacked that problem in a unique and daring manner, which has not been attempted, so far as I know, in any other state. The Child Welfare Bureau receives the marriage notices and sends the federal pamphlet on prenatal care to the young wife. That is about the only way we know of in which mothers can be reached at a time that will do them any good. Hundreds of these are mailed each month. The next: Reduction in infant mortality. That can most easily be reduced by the health conference plan. The plan in Colorado is rather unique, and we are proud of it, because it involves five state-wide agencies: State Board of Health, Child Welfare Bureau, Colorado Tuberculosis Association, State Dental Association and State Agricultural College, and each one has a representative at these rural health conferences. I forgot to mention the extension division of the State University. There are really six agencies. Now it makes a very favorable impression upon the community to have these organizations working in harmony, and the reception they have received has been very favorable; the profession has also welcomed these health conferences, and many of the men here this afternoon have assisted. What is more important to the profession, is our contact with the cults. The local committees that have been organized often times have on them Christian Scientists and other cults. This is purely preventative work. Everyone can see the sense of having their children examined, and what is more important, the medical profession profits by such propaganda. I believe there is no more effective weapon than the rural health conference, and I want to thank you for the cooperation we have had from the county societies, and especially the work that has been done over in Delta county.

Dr. Anderson, Wyoming: The State Health Officer of Wyoming, having lived in this state fourteen years, and having been a member of this society that long, and now engaged in full time health work in Wyoming, wishes to urge upon you the consideration of a few facts, by an insidious comparison. My esteemed friend, Dr. Love, or Dr. Forbes, did not mention that Wyoming is in the registration area. In reference to this health work, here is the great state of Colorado, the only state in the Union that has not a full time health officer, and I think it is an outrage and a shame. To the credit of Dr. Love, he is still operating a well conducted department. Outside of Michigan, you have the best equipment in the United States, so far as modern offices go. And sparsely settled Wyoming—he spoke of vital statistics, and having only one clerk—we have three for the same work, and yet we are looked down upon and sneered at. Wyoming, a wild and woolly, western state, where the wind blows most of the time, is in the registration area. Colorado is not. You are not even recognized as a first class state, because the registering of births is so imperfect and so lacking that you cannot get in. Now, Dr. Love has urged upon you this matter, and just as Dr. Sewell says, whoever heard of a doctor giving up very much when it was a sure thing? He has rendered wonderful service on a little old part-time salary, but for the good of the work is willing to give it up. Now, I want to call your attention to the question of vital statistics. Every well organized department should have a communicable disease division and a head or director. You have none. A sanitary engineer—you haven't one, and you need one. There is not a first class state in the Union that

doesn't have one. Child hygiene: That ought to be under the Board of Health. That is where it belongs, and that is where it ought to be, and that is where it will be, I think. Now then, we have a child welfare department. We have five employees; we have three times the amount of money in Wyoming for that purpose that you have. We have already spent \$18,000 up there. We have at the head of the department a well qualified woman, a graduate of Columbia University. She has worked over the state, holds conferences and does follow-up work and pre-natal work. She carries it to the mothers, organizes classes of expectant mothers, has talks, and so forth, something that you are lacking in this state. This state, a great wealthy state, should be in the foreground instead of being away towards the back. Now, as to public health nursing: it should be a department under the State Board of Health. You should have a director of your state laboratories, and there should be one over on the Western slope and one in some other part, correlated with the central one. Why, here is a great state in which all of my children have been born and I driven out to Wyoming, of course on account of intense competition; but I am proud of Colorado. But, she does not rank very high in health work. I think it is this state that has the honor of having as a health officer in one county, an undertaker, and in another, a negro. I am not down on a negro, but what does a negro know about health work?

Dr. Love called your attention to the matter of placing these matters before the members of your legislature. They are as afraid of death of not getting back into power. You tell these men they have got to do certain things, and they will do them. The swords that hang over their heads are the folks at home. They will do anything the home people want. The Rockefeller Fund: we have in little Wyoming two hundred thousand square miles and two hundred thousand people, and yet we have a full-time working county health unit, with a director, a Rockefeller trained man, a laboratory man, three nurses (infant welfare, and two school nurses,) a sanitary engineer, a quarantine officer and a clerk. Little Wyoming has a full-time, well organized, one of the most efficient health units in the United States, according to Dr. Covington. And here you are a rich state with an older civilization, still fighting among yourselves. Another thing the doctors in many places don't want these things. They are not always for the thing that is for the best in medicine.

Minnie Love, Denver: May I say one word? I want you to know that once upon a time a man said he was too proud to fight. And I want to know how many here are too proud to vote. Tomorrow is the last day of registration, pretty nearly, and I want to know if we are all registered, because you know you can talk this situation from now until something freezes over, and you will never get anywhere until the doctors do their own voting, and not depend upon their patients to do it for them.

Dr. Hayes, Sterling: We used to have a slogan back in New York state that "Public Health Is Purchasable." I don't think that point has been emphasized. Another thing, some of the men out in the rural districts need education. I have had men report cases of syphilis on a postal card. I don't think that some of our doctors even know there are any blanks for that purpose. I want to warmly commend this bill, and I can assure you that our legislators in northeast Colorado will be expected to vote for this, or we will know the reason why.

Dr. Taylor, Ft. Collins: Another skinny health officer. Did you ever see a fat health officer? They might have started out having a little surplus flesh, but after a time they get skinny.

I just want to say that I am a part-time health officer in the northern part of Colorado, and I shall do everything in my power to help Dr. Love get out of his job at the next legislature. We are going to try and get a full time health commissioner for Colorado. As for a sanitary engineer, we have one already, and I want you to know that he is on to his job. We have had reason to resort to his services several time up in Larimer county, and we have found that it is exactly what we wanted.

As far as Wyoming is concerned, I am glad that they are in such a happy position in Wyoming, but I want to speak to you physicians and ask your cooperation from a branch of the Colorado State Board of Health, and that is the Venereal Disease Division. That has not been spoken about here. One of the most important branches, of the health work at the present time, I believe, is the venereal division. It amounts to something to quarantine for measles, chicken pox, and those other diseases, but when we come to fighting off venereal disease, I want you to know that old gonococcus is working night and day, and in a very delicate manner, frequently. I am glad that the health department in Wyoming is getting so much money, and working so much, but do you know the reports we are getting up in Ft. Collins from those who are reporting venereal disease, the question is about their source of infection, and there are about four cases out of five that say "Casper" on that. It is in the air up there. It is an oil region up there. I understand they are running the members of the underworld out from Casper. I believe they are. I believe they are running them down into Colorado. I wish they would pay them enough to get them down as far as Denver, at least. But I want you to know that we are going to work with our representatives and senators, to see that we get everything that is asked from the State Board of Health in the way of allotments from the public fund.

Every twenty-eight minutes in the day and night a human life is sacrificed to violence in New York City.

The Federal Pure Food Act prohibits the use of formaldehyde in the preparation of any food or drug to be taken internally.

Cancer has been legally established as one of the industrial hazards in cotton spinning, by a recent decision in a British court.

Last October the British Mission to Lepers society celebrated the completion of fifty years of relief work in India, China and other Asiatic countries.

There are now only five missing chemical elements.

Opium and cocaine have a recognized and legal medical use to the extent of 6.98 grains of pure opium and 29.32 grains of coca leaves per capita per year.

The chemical composition of chlorophyll, the green coloring matter in plants, is similar to that of hemoglobin.

PLASTIC SURGERY OF THE NOSE; WITH ESPECIAL REFERENCE TO CORRECTION OF "SADDLE NOSE" DEFORMITIES*

HARRY L. BAUM, M.D.
DENVER, COLORADO

The subject of corrective rhinoplasty has received probably less attention at the hands of rhinologists in general than any other important branch of the specialty. To such an extent is this true that but for the devoted efforts of a comparatively few workers it might have fallen into the disrepute which is likely to attach to any branch of medicine relegated to the realm of quackery and charlatanry, as exemplified by the "beauty specialist" preying upon the ignorance and credulity of the unsuspecting public. The war and its resultant demand for reconstructive surgery of the face has happily directed our attention to civil rhinoplasty as well, although the technical problems of reconstructive nasal surgery are in the main quite different from the rhinoplasty of civil practice.

In those cases actually demanding attention corrective work of this type has, through its neglect by rhinologists, frequently been forced upon the attention of the general surgeon, while in others the patient has been left to his own devices in his search for relief from a really serious and distressing situation. This condition of affairs is unfair to all concerned. Rhinoplasty is primarily a problem for the rhinologist, for the reason that his training should best fit him to meet the complicated problems usually presented by such cases. Occasionally a nasal deformity requires nothing more for its correction than the insertion of a piece of bone or cartilage and it may be possible to accomplish this through an external incision; but usually these cases are complicated by obstruction or other intra-nasal or cosmetic defects and require a combination of operations for their correction. It is rare indeed to see a simple uncomplicated defect amenable to correction by a single operation. Such cases do occur, however, and have, to my knowledge, been admirably dealt with by my general surgical confreres, for whose ef-

forts I have nothing but the highest praise.

In spite of this and of the fact that rhinoplasty is a specialty within a specialty, it is my belief that the rhinologist should acquaint himself with its technic and fundamentals in order to afford his patients the service necessary to meet their requirements in this branch of nasal surgery.

In the correction of that type of nasal deformity to be taken up in this paper, the so-called "saddle nose" or depressed deformity, the implantation of substances for the purpose of replacing structural loss is required. Here a great variety of opinion relative to differences in technic is met, particularly as regards the identity of the substance to be used. Subcutaneous injections of paraffin should be mentioned only to be condemned. This method has had its vogue of recent years only in the hands of charlatans, having been long discarded as inefficient and dangerous by the regular profession.

Chondral cartilage, taken from the costochondral junction at about the eighth rib level, is probably the most widely used of any substance. It is easy to obtain and fairly easy to shape to fit the need, is resistant to infection, difficult to kill in handling, and is seldom absorbed. Fibro-elastic cartilage from the septum is rapidly absorbed and can seldom be secured in sufficient quantity for the purpose. Its use is not recommended except for very small defects where its replacement by fibrous tissue will not spoil the perfection of the result.

Bone taken from various locations, such as the rib, tibia, spine of scapula and turbinate with or without periosteum has been recommended by various writers and is widely used. It has the advantage of forming bony union, when correctly placed, and becoming a part of the framework of the nose.

Celluloid and ivory, the only foreign substances the use of which have not been universally condemned, have come into use to

*Read at the annual meeting of the Colorado State Medical Society, October 7, 8, 9, 1924.

a considerable extent of recent years. A wide divergence of opinion exists as to the advisability of their use, their proponents advocating their advantages most strongly and their opponents condemning them with equal emphasis. The ease with which they can be utilized is probably their strongest recommendation, along with the consequent shortening of the operating time.

A number of arguments for and against the use of these various substances have been advanced by competent men favoring one or the other of them until it is impossible for an impartial reader to arrive at a definite conclusion as to which may be preferable. It is reasonable to conclude that there is some merit in all and that the personal equation of individual skill in the application of the method may be the deciding factor in many instances. It is therefore doubtful whether complete unanimity of opinion will ever be possible on this much discussed question.

An extended discussion of this phase of the subject would therefore be superfluous in this connection and I shall confine my remarks to that method proving most satisfactory in my hands and which appeals to me as best suited to meet all the requirements of this type of surgery.

The correction of the depressed type of nasal deformities requires the implantation of some substance to take the place of the lost supportive structures of the nose, consisting of bone, cartilage, or both; most frequently the latter. The ideal to be attained is that of complete restoration of normal contour, thus not only correcting a cosmetic defect but frequently a functional one as well, using for that purpose materials as nearly supplying the physiological demands of the case as possible. This would mean to supply bone where bony structure is deficient and cartilage where cartilaginous structure is deficient. Autogenous grafts of conjoined bone and cartilage taken from the rib at the costo-chondral junction will most frequently meet such requirements and it is this method which is my own personal choice in most cases. The method is in no sense original but has been practiced for many years by W. W. Carter, Lee

Cohen and others, through whose efforts its utility has been amply demonstrated.

As the motion pictures, which are to follow, amply illustrate the technical details of



Figure 1.—Depression following trauma and abscess in childhood. Necessitated two operations for correction: rib graft to raise bridge and cartilage implant in columella to raise tip.

the method, no effort will be made to describe them herein. It is sufficient to state that the method provides bone where bone is deficient, cartilage where cartilage is deficient; that the patient's own tissues are



Figure 2.—Result after first operation. (Rib graft to raise bridge.)

used, taken from a location easily accessible; and that the transplant can be shaped to conform with any requirement and can



Figure 3.—Final result. (After columella implant.)

be thus utilized to reconstruct the framework of the nose for the proper support of its soft tissues. The graft must be in contact with bare bone at two points in order to establish bony union and assure its proper nourishment and should be covered with periosteum on its external surface to assist it in establishing itself as a living functioning part of the nasal framework.

Other forms of rhinoplastic surgery and



Figure 4.—Fracture depression necessitating submucous resection and rib-graft for correction.

preparatory intra-nasal work may be required for the complete correction of many of these defects. Such is more often the rule than the exception and it is these complicating factors that frequently add much to the difficulty of the case. A submucous resection of the nasal septum is quite often required, frequently a bulbous tip must be reduced or an alar cartilage partially resected to narrow a dilated nostril. Occasionally the nasal framework is not only depressed but deviates from the mid-line so that its replacement must be accomplished as a preliminary to tissue grafting and a dropped tip may require the insertion of an anterior supporting strut in the columella in order to derive the full benefit from the rib graft. Such complicating conditions are a part of



Figure 5.—Result.

the problem of successful correction of these defects and upon the personal skill and mechanical ingenuity of the operator, and his ability to apply the corrective measures available to the particular case in hand, depends his ultimate success in the work. Sound judgment, technical skill and patience will accomplish as much here as in any other branch of surgery, but without them the aspirant for success in this field will fare poorly, for the evidence of failure is subject to the inspection of all who care to observe it.

DISCUSSION

C. E. Cooper, Denver: In the first place, I want to heartily commend Dr. Baum for his energy, ingenuity and industry in bringing before the Society, by moving pictures, and otherwise, a rather dry sort of subject to be read in a general paper. They illustrate the various methods of operative procedure, the type of deformities for which the operation is done, and the result in a much better manner than could be done by talking about them and by showing slides, that is, non-mobile slides, or photographs. The paper has covered the subject in such a general way that there is very little left for discussion except to reiterate a few points that he has brought out, the principal one of which, I think, is that this sort of work belongs in the realm of the rhinologist. Just as he said, not only are external operative procedures quite commonly necessary, but also internal operative procedures are necessary, and unless the operator has experience in both, he is not likely to get as good a result as if he had experience in both the external and internal work; and as the internal work is quite within the realm of the rhinologist, and the external work is not outside the realm of the rhinologist, this field falls quite commonly to him. I trust as time goes on it will be taken from the hands of the charlatan and properly placed within the medical profession.

One point that he mentioned, but did not lay great emphasis upon was illustrated in the forceps with which he holds the graft, and that is in the transplant of the graft. It is very necessary that it does not get contaminated. Intra-nasal incisions are incisions in infected fields, and consequently the preparation necessary previous to operation, to establish as aseptic a field as possible, is of great importance. He said he would not go into that part of it, and I am sorry he did not mention it. There is a certain type of deformity which does not require internal work, and under certain conditions can, I think, be done as a matter of choice through external incisions, namely, in an individual in whom the scar does not make very much difference. Of course, if you have a person who wears a heavy spectacle, a scar across the root of the nose, is not of much importance. This has the advantage of offering a more aseptic field than if the transplant is by an incision on the inside of the nose. As I stated, there is very little to say about the paper. The pictures show the work most beautifully. Dr. Baum, in his opening statement, covered the subject in such a manner that I have but little to say, except that of commendation.

Leonard Freeman, Denver: I want to say a word about the correction of saddle nose. In 1913, that is eleven years ago, I did some operating in this way by transplanting slivers of bone from the tibia, and also cartilage from the rib, but particularly the bone from the tibia. Two things I found added much to the ease of operating. The first was the method of loosening the skin on the bridge of the nose. In saddle-nose the curve of the nose is such that the skin has to be elevated before the bone graft can be inserted easily. This I did by making a subcutaneous tunnel along the bridge of the nose with a pair of dissecting scissors inserted through a small transverse incision between the eyes. Into this tunnel was inserted the blunt curved end of an ordinary large urethral sound, convexity towards the forehead. By using the frontal region as a fulcrum the skin can readily be elevated and stretched, the process being added if necessary, by undermining with scissors the sides of the nose and even portions of the cheeks.

Another thing that helped me much in inserting the graft, after the cavity had been made, and the skin properly elevated, was to shove a large needle through the tip of the nose up through the prepared cavity, and out through the incision, using it as a skid-way on which to slide the bony splinter into place along the bridge of the nose. The needle is then withdrawn. It produces no appreciable-scar.

J. J. Pattee, Pueblo: I wish to speak of this paper more as a matter of commending it for its real success than for any other reason. Surgical work in this line, which has been undeveloped for a considerable time, has not been so very successful, but we are now making, just as we have in other intranasal work, very rapid progress in this line of surgery. I want to say to you as one practicing otolaryngology, that just as in a few other things, this is sort of a highly specialized hobby of specialists, and you must not think that every one of us fellows can do the kind of work in this line that Dr. Baum does. I want to emphasize that there are such lines of work within the bronchial tubes in which the general practitioner, you might say, is really unfitted, and you may know some specialist personally in St. Louis, Denver or Chicago very well in a general way, and you send your case to that man expecting him to do that kind of work, and you will be sorely disappointed; and it is for that reason I want to emphasize that such things as cleft palate and intra-laryngeal work, that is, the direct method of going into the bronchial tubes, and matters of straightening up the nose successfully, after this manner, is done by a comparatively few men, and if there are specialists here in our line that are fairly busy men, I wish to urge upon them the propaganda of referring this kind of work to a limited few. Every man cannot have a hobby in every line and do it well. Therefore, this work should gravitate into the hands of a few. If I can get a case with a serious deformity that will come to me, I shall be pleased to direct that patient, and I am competing with Dr. Baum in my particular neighborhood as much as any other fellow is competing with his fellow man. But the proposition is to have a few men well developed by intensified work, from the experience that comes by a number of men referring those cases to them. This is a splendid paper.

D. H. Montgomery: I should like to commend Dr. Baum on the splendid way he did this piece of work. I have not had any experience in this kind of work, except as assisting Dr. Kyle in Los Angeles. Dr. Kyle has a method of introducing this bone transplant in which it is wrapped in a sterilized piece of gutta, percha, and after this he slides the gutta percha out with a knife and withdraws it.

Dr. Baum (closing): The intranasal incision, as mentioned by Dr. Cooper, is not as easily taken care of so far as asepsis goes as is the external incision. A perfect aseptic technique is, however, possible and although time does not permit a full discussion of that branch of the subject the same principles apply here as elsewhere. The fact is that infections are rare in these cases in the experience of men doing a great deal of this work by the intranasal method and I think the slight difference in favor of the external incision in this regard is easily compensated by its disadvantages in other ways. So far as the external incision is concerned, from other points of view, it has many disadvantages. One difficulty is the proper placing of the upper end of the graft under the peristernum of the nasal process of the frontal bone,

which is necessary for the proper nourishment of the graft and for bony union between the graft and the nasal process.

Dr. Freeman's suggestion regarding the stretching of the skin over the nasal bridge to accommodate the graft is met in the intranasal method by extensive elevation of the skin over both sides of the nose and down over the maxillary bones of the face if necessary. In this way sufficient mobility of the skin may be secured without fail, while with the external incision it is rather difficult to elevate as extensively as might be desired. Stretching the skin, it would seem to me, with the intention of placing a graft beneath it might be a rather dangerous procedure, as much tension on the skin over the graft will result in perforation and failure. The bilateral intranasal incision gives access both for elevation of skin and introduction of the graft and meets the requirements of the method almost perfectly.

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Primitive forms of plant life have been found in the hot springs of Yellowstone Park at temperatures only nine degrees below the boiling point.

An English chemist has succeeded in extracting paying quantities of insulin from codfish.

AS OTHERS SEE US

A layman's viewpoint on the doctor business appears in the recently published Letters of Franklin K. Lane. There is something salutary in the description, despite the strain of bitterness.

"I am being ground and wound and twisted and fed into and out of the Mayo mill, and a great mill it is. Of course they are giving me a private view, so to speak. Distinguished consideration is a modest word for the way in which I am treated—not because of my worth but because of my friends. Those men are greater as organizers, I believe, than as workmen, which is saying much indeed, for they are the surgeons supreme. . . . Two or three hundred people, new people, a day pass through (their shop). Sixty to seventy thousand a year received, examined, diagnosed, treated perhaps, operated on (fifty per cent), and cared for. The machinery for this is colossal and superbly arranged.

"Dr. Mayo told me to come over at two o'clock and register. . . . I stood in line and was duly registered, telling name, and other such facts, non-medical. Then a special guide took me to Dr. Mayo, who had already heard my story at the hotel but who wished it in writing. Accordingly, I was presented to a group of the staff and one man assigned as my escort. I answered him a thousand questions, touching my physical life for fifty-six years. Then to the tonsil man, who saw a different 'focus', now there, a focus in the tonsils! Nose and ears without focus or foci or focuses. Down an elevator, through a labyrinth of halls, down an inclined plane, up a flight of steps, two turns to the left and then a group of the grumpiest girls I ever saw or heard or felt. They were good looking, too, but they didn't care to win favor with mere males. They had a higher purpose, no doubt. They openly sneered at my doctor escort. They lifted their eyebrows at my good-looking young son, and they told me precisely where to sit down. I was not spoken to further. My ear was punched and blood was taken in tubes and on slides by young ladies who did not care how much of my blood they spilled or extracted. They were so business-like, so mechanical, so dehumanized, these young ladies with microscopes! One said cryptically '57', another said '53'. I was full of curiosity but I did not ask a question. They tapped me as if I were a spring—a fountain filled with blood—and gave me neither information, gaiety or entertainment in exchange. Each one I am convinced has by this life of near-crime, which she pursues for a living, become capable of actual murder.

"There are one hundred and fifty physicians and surgeons in the clinic, and Heaven knows how many hundred employees. No hospitals are owned and run by the Mayos; all these are private, outside affairs. The side tracks are filled with private cars of the wealthy. Scores of residences, large, small, fine and shabby are little hospitals.

"I am tomorrow to be medically examined further, to the revealing of my terrible past, my perturbed present, and pacific future. The result of which necromancy I shall duly report. I am afraid that they will not find that an operation will do good if so I shall truly despair. And if they decide for the knife, I shall go to the guillotine like the gayest Marquis of the ancient regime. Yes, I should do better for I have my chance, and he, poor chap, had none."—From The Letters of Franklin K. Lane.

PLACENTA ACCRETA—REPORT OF CASES*

C. E. TENNANT, M.D., R. E. WILSON, M.D., and HELEN CRAIG-SULLIVAN, M.D.

DENVER, COLORADO

Placenta Accreta occurring in a multipara during period of gestation and inducing foetal death. Spontaneous extrusion of growth through top of uterus, followed by diffuse peritonitis and death.

The purpose of this paper is to call the attention of the members of this society, who undertake obstetric work, to an obscure but serious complication which may occur during pregnancy, or in the third stage of labor. In reporting this case in our recent experience, I wish to emphasize the need for recognition and immediate and radical surgical interference in such cases when it is evident there is more than an adherent placenta present.

Placenta accreta is evidently a very rare lesion since, so far as we can learn, there have been but twenty-six cases reported in the medical literature. No doubt this lesion has occurred far more frequently than these reports would lead us to infer, but traditional teachings have so strongly advocated the "hands off" policy in all septic puerperal cases that they have seldom been given the benefit of surgical interference.

It is, no doubt, also true that this same policy of "expectant" or so called "supportive treatment" has been responsible for the very high mortality occurring with the placenta accreta cases so far reported, since but two recovered and these two had been afforded an early operation and hysterectomy.

The writer has long believed that some of the cases of puerperal sepsis should be given the benefit of at least an exploratory opening such as is accorded patients with ruptured appendices, or localized pelvic abscesses. Observations made by Dr. Craig-Sullivan and the writer, in autopsies on a considerable number of puerperal sepsis cases, have impressed us with the fact that the pathology found might have, at one time, been amenable to surgical treatment, or at least to pelvic drainage and while present at the autopsy in the case herewith reported, we were all convinced

that if the patient had been subjected to a hysterectomy, although in the face of sepsis, there might have been a chance for recovery.

The recent contribution to this subject by Polak (1) has called attention to this complication as occurring in the third stage of labor, but that it may also occur at any period of gestation, after the second month, is evidenced by the case we are reporting. That these placental attachments may not alone invade the peritoneal coat of the uterus, but actually penetrate through the peritoneum and even invade the visceral cavity, is also demonstrated by this case. From the appearance of the crater where the placenta extruded through the uterine wall one can readily see the possibility of the growth extending over and into the bladder, bowel and mesentery.

Polak says (2) first: "Though rare, placenta accreta is a pathological entity and should not be confounded with adhesions of the placenta, for accreta is the result of an entire, or almost entire, absence of the decidua basalis which exposes the muscles of the uterine wall to the erosive action of the trophoblast and penetration of the villi." Second: "That the etiology is dependent upon changes which produce an atrophy, or absence, of the normal uterine decidua, such as previous manual removal of the placenta, vigorous curettage, endometritis, submucous myomata, etc." Third: "That the high mortality attending this complication is the direct result of improper treatment, due to failure to recognize that in true accrete there is no line of cleavage, for the placenta is not only an intimate part of the muscular wall, but that the erosive action has so thinned this wall that attempts at removal produce hemorrhage and open avenues for infection and even permit perforation of the uterus."

In our case the opening of the avenue of infection occurred gradually, during the

*Read at the annual meeting of the Colorado State Medical Society, October 7, 8, 9, 1924.

early months of gestation, and finally, after a profound chill, lasting three hours, followed by a rise of temperature, a spontaneous abortion of a macerated five months foetus occurred.

Our case has been so similar to those reported by Polak, in his classical description, that one could easily presume it to have been one of his cases, had it not developed during the fifth month of gestation instead of during the third stage of labor.

Report of Case

Multipara, aged 38. Five pregnancies. First delivery instrumental, 1914, child still born, followed by mechanical removal of the placenta. Second child living, 8 years old, normal delivery. Labor twenty-four hours duration, followed by adherent placenta. Third delivery full term, instrumental, feet presentation, in labor twenty-four hours and still born. Retained membrane removed by manual manipulation. Fourth child delivered by Dr. R. E. W., three and one-half years later, full term female weighing 8 pounds. Normal birth, adherent placenta in the upper right portion of the uterus, manual delivery, following which the puerperium was uncomplicated, the patient returning home within two weeks. She was not seen again until Dr. R. E. W. was called, to find her four months pregnant and having uterine hemorrhage and contractions, with some cervical dilatation. A gauze pack was placed in the vagina and about the cervix, and morphine administered hypodermically. This controlled the attack and the pack was removed in twenty-four hours, with no hemorrhage following. Patient did well for the succeeding month.

One month later, or five months in her gestation period she was awakened about 2 a. m. with a chill lasting some three hours. At 8:00 a. m. Dr. R. E. W. was called and found her in labor, delivering a macerated foetus; following this there were but a few small pieces of placenta expelled, the uterus remaining very large, firm and high up in the abdomen, suggesting either an intra-uterine tumor, or a retained placenta. Manual effort at this time was unsuccessful in removing the placenta and she was, therefore, advised to go to the hospital at

once, which she refused to do. As her condition remained unchanged at the end of thirty-six hours, while still carrying temperature, but no bleeding, she consented to be placed in the hospital where she was examined by the writer. A large mass was found in the upper horn of the uterus, about 9 cm. in diameter, the uterus was freely movable, not tender to the touch, nor was there rigidity or tympany.

Not being familiar with Polak's recent contribution, and believing with Dr. R. E. W. that an intra-uterine examination and removal of the placenta was indicated, the patient was sent to the operating room. Here, under ether, it was found there was no line of cleavage between the decidua-basis and the retained mass and it was thought the patient had a soft submucous fibroid and a hysterectomy was, therefore, advised as soon as the acute sepsis had subsided and before the patient should return home. However, the opportunity never presented itself as she continued with acute puerperal sepsis until it terminated by death at the expiration of eight days.

The clinical chart and the postmortem findings convince us that this patient should have been given the benefit of a pelvic exploration, and possibly a hysterectomy, while she was under the anesthetic, and after we discovered there was no line of cleavage. The autopsy report, by Dr. Craig-Sullivan, proves our error in judgment.

Autopsy report (Dr. Helen Craig-Sullivan):

The body is that of a well nourished, well-developed female. Height 5 feet 6 inches, weight 130 pounds, apparent age 37 years.

Upon opening the abdomen the omentum was found to be injected, thickened and adherent to the top of the uterus.

The intestines had a thin deposit of lymph and fibrin covering them. They were adherent to each other. These adhesions were of recent origin and were easily broken up. Between each loop of adherent gut was pus in varying amounts. The mesenteric glands were enlarged.

The spleen was twice the normal size and was very friable and congested.

The kidneys were normal in size. The

capsule stripped easily, leaving a smooth surface. There were a few old scars in the lower part of the right kidney. Beyond passive congestion there was nothing of note.

The uterus was enlarged to twice its normal size, the right side being larger than the left, being 15x11 cm. On the top and close to the right tube was a dark red area the size of a dollar. This had a cauliflower like appearance and was covered with a large blood clot. The right tube was thickened, congested and adherent to the ovary.

Upon opening the uterus a cone shaped mass was found filling it. This mass was adherent to the vault of the uterus and had grown through the wall. At the point of its attachment the wall of the uterus was thinned, only the peritoneal coat being left.



Bisected uterus showing attachment of placenta and its invasion of the uterine wall.

The mass was bloody, very dark in color and had a foul odor.

There were no other gross abnormalities in the body.

Upon section of the uterus this mass was found to be placental tissue.

Conclusion: In reviewing the history of this case and the autopsy findings we can only emphasize what Polak has said in his classical summing up of this most interesting and little known pathology.

1. "There is considerable confusion in the minds of the profession between simple adhesion of the placenta and true accreta."

2. "Accreta (Inerete of Dietrich), is a definite pathological entity."

3. "Manual removal is impossible and can only result in hemorrhage, sepsis or per-

foration".

4. "Every delayed placenta without



Magnification of crater in uterine wall where placental erosion and extrusion into the peritoneal cavity occurred.

hemorrhage should be viewed with suspicion; and no attempt at Crede's method should be made if the clinical signs of separation are absent".

5. "In the presence of attached placenta, without bleeding, aseptic exploration, under anesthetic, should be made to determine the subsequent procedure".

6. "Finally, if no line of cleavage can be demonstrated, hysterectomy should be done".

7. To these I would add a suggestion that in all cases of acute peritonitis, occurring during the period of gestation, the possibility of placenta accreta should be considered as an etiologic factor, and a more reasonable attitude toward exploration entertained.

DISCUSSION

Clarence B. Ingraham, Denver: Dr. Tennant has called to our attention a very rare condition. Dr. Polak in his article announces that this condition occurs about once in six thousand cases. The probability is that it is even very much more rare, because Hirst who discussed his paper said he had seen 40,000 labor cases and never encountered a case of placenta accreta, others who have had large experiences have made the same announcement. Frankel who heard Pollock's paper said they had heard of or seen cases of this kind, and remarked that we must differentiate between the so-called adherent placenta and true placenta accreta. Adherent placenta is often a misnomer, because in the majority of cases there is some fault in the mechanism of expulsion of the placenta due to abnormalities in uterine contraction. In rare instances the placenta is firmly attached to the uterine wall. There have been cases examined by autopsy in which it was found that it was necessary to actually tear the placenta away, and in so doing, tear out part of

the uterine wall. In 1897 these cases were examined histologically by Newmann and Hense, and it was found that where the placenta attached itself to the uterine wall the underlying decidua basalis was entirely lacking. The attachment was by direct invasion of the chorionic villi, into the uterine musculature and separation was impossible because of this invasion. This attachment is either complete, that is the whole placenta is so attached, or it is only partial, if it is partially attached we have bleeding during the third stage of labor, if it is complete, we do not. We should wait two hours before we try to do a manual removal of the placenta, and then if we find there is no line of cleavage, we are justified in going in with the hand.

The question is asked, "How long do we dare leave the placenta inside with the hope that it will come away or slough out?" Most of us agree that we do not dare wait too long in the hope that the placenta will come away. A case where the placenta was not delivered, and the patient remained in six weeks is reported by Studdiford. There was no infection; it was not known that the placenta was present. Malignancy was suspected and an hysterectomy was done. This was thought to be a case of placenta accreta in which the attachment had remained fast, even in six weeks the woman had not become septic. In placenta accreta Dr. Polak advises hysterectomy. I think there is one thing we have to be careful about and that is that we must know that we have definitely this condition present, because otherwise when people go ahead and try to express the placenta by the Credé manœuvre and find it is practically impossible, they make a diagnosis of placenta accreta, and will do a hysterectomy when it is not necessary. We must be sure that there is this absolute firm attachment, and no line of cleavage, before we come to such a conclusion.

J. B. Hartwell, Colorado Springs: There is only one point that has not already been mentioned that I would like to stress, and that is in regard to the invasion of the chorionic villi into the muscular wall of the uterus so that the uterus is very much thinned. Several cases have been reported in which the patient during labor has suffered with the symptoms of acute internal hemorrhage. In these cases there is the possibility of rupture of the thin uterine muscular wall through labor. Placenta accreta must be considered as a possible cause of uterine rupture during labor, and prompt measures taken, which would mean a laparotomy.

Dr. Tennant, (closing): I would simply add to the paper that so far as we could find there were twenty-six cases reported in the literature at the present time, and of those twenty-six cases twenty-four died. There is very little harm done in exploration, in order to know what the conditions are, because then one is prepared to do what seems best under the circumstances.

707 Majestic Bldg.

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3. Deitrich, H. A.; Die Placenta Accrete (Increta): *Zietschrift für Geburtshilfe und Gynecologie*. Band 84, 1921-22.
4. Baldwin, J. F.; The Surgical Treatment of Certain Puerperal Infections. *American Journal of Obstetrics and Gynecology*, vol. 5, p. 499.

5. Brinkley, Arthur S.; Further Observations Upon the Treatment of Puerperal Septicemia. *New York Medical Journal*, vol. 105, p. 499.

6. Andrew, C. J.; Report of a Case of Retained Placenta, Clinically Placenta Accreta. *J. A. M. A.*, 1924, vol. 82, p. 1880.

HECK ON CHIROPRACTIC

Dere Fokes:

Doctors can sure think up more diseases and operations than you or me ever dreamed of together. They get an operatin instrument to fit every patient what comes in, no matter what is wrong with him or not. Now I hear of spinal adjustment which is based on the theory that the spine is the backbone of the entire human system. From that and the way I hear they do it it must be a purely painful one. But this one after all aint so popular with regular doctors which is very strange indeed since it is a paying proposition both for patient and doctor. There be a jealousy somewhere but they have enough others without worryin about this sole one. But the rumor is one guy died because they wouldnt give it to him. He'll never know what he missed now anyhow which should console him wherever he is. Another guy didnt want it but took it for his girls sake and he died. They aint much prospect of yours truly foolin with any sich operation which is so equally fatal whether you take it or pass it up.

Your safety first,

HECK.

"Bugs and Nuts (Fitzsimons Hospital)."

THE PROFESSOR

"The doctor I remember best was Professor Hieronymus. He had sideburns longern my mother's lace curtains, an' could cure anything from birthmarks to baldness, no ailment barred. Vital healin', he called it. No knife, no medicine nor nothin', jus' the plain application of his hands over the afflicted part. Why, Barney, magnetism poured out of him like sap out of a sugar maple. For two dollars he'd take plain tissue paper between his palms an' vitalize it, an' all you had to do to keep well was jes' pin it on your night shirt at the back over the great nerve center of the human body."—"Uncle Henry," quoted by James J. Walsh, in "Cures."

THE QUACK

In the hands of the charalatan, people in general are nothing but absurd puppets, and their emotions are the strings by which they are worked.

All such people display the same childish terror, not only of disease but of the physician and the scientific methods employed by him in diagnosis and treatment. Some, however, have a strong faith in material remedies, and, in consequence, look upon the patent medicine quack as their natural protector against the machinations of orthodox practitioners.—J. W. Courtney in "The Conquest of Nerves."

X-ray motion pictures of a beating heart have been obtained by two French operators.

Tobacco growers lose \$25,000,000 a year from diseased plants.

One-fourth of all the absences from school are attributable to colds.

SYSTOLE

Genius is only great patience.—Buffon.

Measure twice, cut but once.—Scotch Proverb.

Labor is the only prayer that Nature answers.—Ingersoll.

It is better to turn back than lose one's way.—Russian Proverb.

Enthusiasm is not a herring that can be pickled and kept for years.—Goethe.

Say not all that thou knowest but believe all that thou sayest.—German Proverb.

Some people look at things; others see them; a few see through them.—Glen Buck.

In youth we have our troubles before us; in age we leave pleasure behind.—Irish Proverb.

To overcome evil is worth three pieces of gold; to have none in the heart is worth five. Japanese Proverb.

It is quite easy to throw a stone into the Danube, but rather difficult to get it out.—Yugoslav Proverb.

It is better to know nothing than to know badly, or little, which is the same thing.—Remy De Gourmont.

Life is beautiful at the moment, sad when we look back, fearful when we look forward.—George Moore.

Inquiry is Human; Blind Obedience is Brutal. Truth never loses by the one, but often suffers by the other.—Wm. Penn.

In sandal trees there are serpents. In the waters with lotuses there are also alligators. There are no unobstructed pleasures.—Sanskrit Proverbs.

DIASTOLE

The more a government issues permits, the fewer things it permits.

"That fellow's dead and doesn't know it."

"Not at all. He merely wears a grave countenance."

"Mr. Landlord, the gas has been off for over a week."

"Well, the rent has been off for a couple of months."

"Why do they call this the Profit-Sharing Drug Store?"

"There are two bosses and they take half the profits each."

"I have a bill for absent treatments given to your wife."

"Send it to Vancouver. I'll be absent from there for five years anyway."

"Mother, I don't want to take Aunt Tabitha to the park any more. She's so shortsighted that she has to get on the lawn to read the KEEP OFF THE GRASS signs."

A well-known Boulder physician received an emergency call when at a concert. The next man to follow him out was an undertaker, and it is said that the physician nearly lost his practice.

City editor to reporter: "Young man, you are losing your grip. You used to write about 'well-defined rumors' and lately you have taken to 'circumstantial rumors.' I want you to give the public your old-time stuff."

Alienist: "Do you sometimes hear voices?"

Suspect: "Yes, sir."

"You hear the voices when there's nobody there?"

"Lots of times."

"When?"

"When I tune in my radio."

NEWS NOTES

Dr. Robert T. Frank has been appointed attending gynecologist at Mt. Sinai Hospital, New York City. He is closing his office April 1st, but will continue his consultation and operative practice in Denver till August 1st.

Dr. S. Fosdick Jones has returned to Denver after a vacation of several months in California.

Dr. G. L. Monson is taking postgraduate work at the Mayo Clinic.

A baby boy was born to Dr. and Mrs. Walter Hotchkiss of Brighton in February.

Dr. Leonard Freeman has returned from a trip to Central America.

Dr. T. A. Stoddard of Pueblo spent February in Florida.

Dr. G. Walter Holden has returned to Denver from Washington, D. C.

Dr. Oliver Lyons left Denver March 17 for a trip to the Panama Canal and Central America.

Dr. S. B. Childs of Denver is spending a few weeks in Florida.

Dr. Lorenzo B. Lockard will return to Denver from California April 15.

CORRESPONDENCE

THE EDITOR REBUKED

Editor, Colorado Medicine.

Sir: In your March number in your short editorial, "The Malcontent," you call attention to the fact that the dull students expected a higher grade than they deserved and then you conclude that here is an "explanation of the psychology of the disgruntled citizen—the anti, the red, the I. W. W., etc. He expects more from life than he is entitled to, and resents the failure of his expectations."

Is your statement true as to the facts? Are all wage earners and producers of wealth receiving all they should be? Your statement would lead one to infer that they are. But if wealth is the product of labor applied to natural resources how is it that the bulk of the wealth is not in the producers' hands? According to the 1910 census at that time 2 percent of the people owned 60 percent of the wealth. And in an article in the Christian Century for Feb. 26th I note this question: "The social mind asks why millions of families in the United States now live upon less than a decency income. Why do 14,558,224 income earners receive less than \$1,000 per year?"

Should these families not expect more? The fact that they do expect more and the fact that there are those that are endeavoring to bring about a more equitable distribution of the product of labor is an evidence of intelligence on their part and not an evidence of the kind of psychology which you impute to them.

The disgruntled citizen of all the ages past and gone has been responsible for progress and I do believe that sincere, intelligent doubt and sincere, intelligent unrest are the greatest blessings of mankind. The savage doubts not any of his established customs and beliefs but we call his beliefs superstition and he does not progress, he stands still. To have faith in a false premise or proposition will not bring security or satisfaction or progress.

Dr. Pusey of the A. M. A. has treated exhaustively the subject of the inadequate supply of physicians in rural communities and he gives

as one of the main causes of the lessening number of medical students the fact of the increasing expensiveness of medical education. And he suggests one good remedy consisting of reforming our medical curricula so as to eliminate a mass of unessential details in some of the courses and so decrease the time necessary for the obtaining of a medical diploma. Then there are suggested means of enticing the young doctors to rural communities through subsidies. Nowhere, however, in that discussion have I seen any remedy offered or suggestion made, that the inadequate incomes of the fathers, of many children who would study medicine and who from financial reasons cannot, be supplemented or made adequate so that these children should not have to be deprived of the kind of education to which they are by right entitled. These disgruntled citizens, however, see where others do not plainly see, that the economic rules in too many things that have to do with life and its opportunities.

And so, Mr. Editor, I would prefer that you align yourself upon the side of those who, seeing the need of a betterment, are endeavoring to bring it about in the best way that they know.

JOSEPH PESTAL.

Reply: The editor of Colorado Medicine does not presume to solve life's problems in his brief Notes and Comments. At most he expects to suggest a thought.

The thought presented in the disputed paragraph is that the cause of unrest is sometimes psychological, rather than economic,—an idea fully accepted by industrial psychologists.

The editor makes no denial of economic inequalities. Undoubtedly there is truth as well as cynicism in the old complaint that some inherit gold while others inherit syphilis.

HEALTH FILMS

The Bureau of Visual Instruction of the University of Wisconsin gives in Supplement No. 2 a list of recently published health films:

TITLE	REELS
Rescuing from Drowning.	
Jiu Jitsu.....	1
Keeping Cool.....	½
Inside Out.....	1
Conquering the Diphtheria Germ.....	1
Waste Disposal in Cities.....	1
Every Swimmer a Life Saver.....	1
Science of Life.....	12
Saving the Eyes of Youth.....	3
Master Minds:—Dr. Simon Flexner.....	1
Before the Doctor Comes.....	1
Out of the Shadows (Tuberculosis).....	2
Swat the Fly.....	1
Better Milk.....	1
Gentle Medicine Man.....	1
Bending the Twig.....	1
Tommy Tucker's Tooth.....	1
The Modern Pied Piper.....	2
The Knowing Gnome.....	1
Action of the Human Heart.....	½
How We Hear.....	½
How We See.....	½
How's Your Eyesight.....	½
The Human Voice.....	½
What Is Your Body Worth?.....	½
Stung! By Amos Quito.....	½
An X-Ray on Teeth.....	½
Evolution of the Dance.....	½
Circulation of the BloodFrog Parasites.....	1

NEW BOOKS

HOW TO AVERT CANCER. By H. Reinheimer. Pamphlet. Surbiton, England: Gravett & Co.

THE GROWTH OF THE MIND. By K. Koffka. Translated by Robert Morris Ogden. Svo. New York: Harcourt, Brace & Co. An introduction to child psychology.

WHEN LIFE LOSES ITS ZEST. By Abraham Myerson. 12mo. Boston: Little, Brown & Co. \$1.75. The morbid state of anhedonia and how to treat it.

MEDICAL CERTIFICATION FOR MARRIAGE. By Fred S. Hall. Pamphlet. New York: Russell Sage Foundation. An account of the administration of the Wisconsin marriage law as it relates to the venereal diseases.

MANUAL FOR DIABETICS. By Gladys L. Boyd. 12mo. New York: Funk & Wagnalls Company. \$1.50. Treatment of diabetes told for the laymen.

CHARLES ROBERT DARWIN AND HIS BIOGRAPHICAL ANTECEDENTS. By Duren J. H. Ward. Pamphlet. Denver, Colo.: Up the Divide Publishing Company. 50 cents. A chapter in the rise of biology.

SAMUEL REYNOLDS HOUSE OF SIAN. By George Haws Feltus. 12mo. New York: Fleming H. Revell Company. \$2. A pioneer medical missionary, 1847-1876.

THE MEDICAL SCIENCES IN THE GERMAN UNIVERSITIES. Translated from the German of Theodor Billroth. Svo. New York: The Macmillan Company. A study in the history of civilization.

HEALTH VIA NATURE. By Dr. Harry Finkel. 12mo. New York: The Society for Public Health Education. Prevention and treatment of disease by natural methods.

THE DEBT OF SCIENCE TO MEDICINE. By Archibald E. Garrod. Pamphlet. New York: Oxford University Press. 70 cents. The Harveian oration delivered before the Royal College of Physicians of London on St. Luke's Day, 1924.

CHEMISTRY FOR BOYS AND GIRLS. By Carlotta C. Greer and J. Cora Bennett. 12mo. New York: Allyn & Bacon. \$1.80. The primary elements of chemistry in a practical textbook for use in the class room.

PRINCIPLES OF PSYCHOTHERAPY. By Dr. Pierre Janet. Translated by H. M. and E. R. Guthrie. 12mo. New York: The Macmillan Company. \$3. The evolution of mental treatment and study of psychological phenomena on which mental treatment is based.

LEFTHANDEDNESS. By Beaufort Sims Parson. 12mo. New York: The Macmillan Company. A scientific study of lefthandedness based upon a physiological principle having to do with binocular vision.

BUILDING STRONG BODIES. By Woods Hutchinson. 12mo. Boston: Houghton Mifflin Company. A textbook for young children on play and the out of doors.

LORD LISTER. By Cuthbert Dukes. 12mo. Boston: Small, Maynard Company. A biographical study in the Roadmaker's Series.

THE MENTAL GROWTH OF THE PRE-SCHOOL CHILD. By Arnold Gesell. Svo. New York: The Macmillan Company. A psychological outline of normal development from birth to the sixth year.

PROCEEDINGS OF THE INTERNATIONAL CONFERENCE ON HEALTH PROBLEMS IN TROPICAL AMERICA. Svo. Boston, Mass.: United Fruit Company. Held at Kingston, Jamaica, B. W. I., July 22 to August 1, 1924.

SOCIAL CONSEQUENCES OF BUSINESS CYCLES. By Maurice B. Hexter. 12mo. Boston: Houghton Mifflin Company. \$4. The relationship between births, deaths, marriages and divorces and the business cycle.

BOOKS RECEIVED FOR REVIEW

A LABORATORY GUIDE IN HISTOLOGY. (Second Edition, Revised). By Leslie B. Arey, Ph.D. Philadelphia and London: W. B. Saunders Co.

MANUAL OF PSYCHIATRY. By Paul E. Bowers, M.D. Philadelphia and London: W. B. Saunders Co.

ABT'S PEDIATRICS. Edited by Isaac A. Abt, M.D. (Volume IV). Philadelphia and London: W. B. Saunders Co.

MAGAZINE ARTICLES

THE CHILD WHO WON'T MIND. By George R. Pratt, M. D. Modern Priscilla, April.

SMOKE ABATEMENT, SUNLIGHT AND HEALTH. By John B. C. Kershaw, F. I. C., F. S.S. Fortnightly Review, February

BIOLOGY MOULDING THE FUTURE By J. B. S. Haldane. Forum, March.

THE INSECTS ARE WINNING. By William Atherton Du Puy. Harper's, March.

PERSONALITY AND EVOLUTION. By G. C. Merton. Open Court, February.

FAITH HEALING. By Sir Robert Armstrong Jones, M. D. Nineteenth Century, February.

CRIME AND PUNISHMENT. By H. J. Bridges and Clarence Darrow. Century, March.

CHILD PSYCHOLOGY: REASONING By Dr. Edith Mulhall Achilles. Child Welfare Magazine, March.

DISCIPLINE IN CHILD TRAINING. By Joseph Jastrow, Ph. D. Woman's Home Companion, April.

REDUCING IN SPOTS. By Fielding H. Yost. Delineator, April.

MY DEAFNESS. By Thomas A. Edison. Cosmopolitan, April.

FIXING THE BLAME FOR THE OPIUM EVIL. By W. H. Graham Aspland. American History, March.

MOULDING YOUR CHILD'S CHARACTER. By Dr. Arnold Gesell. Delineator, April.

SEEKING THE SECRET OF THE SUN IN ECLIPSE. By Watson Davis. American History, March.

AN ENGINEER TALKS ON MEDICINE. By Arthur B. Green. Atlantic, March.

WHAT THE RURAL NURSE OWES THE RURAL DOCTOR. Red Cross Courier, March 2.

MEDICAL SOCIETIES

COLORADO OPHTHALMOLOGICAL.

The regular meeting of the Colorado Ophthalmological Society was held January 17, 1925, in the assembly hall of the Medical Society of the City and County of Denver, Dr. Melville Black presiding.

G. F. Libby, Denver, presented a man aged 46 years who had come on December 1, 1924, on account of marked impairment of vision of the left eye during the previous five days. Ophthalmoscopic examination had at first been negative, but later the disc and part of the adjacent retina were moderately edematous, and three days later the protrusion of the disc was four diopters, with vision completely abolished. Dr. G. R. Warner had found the ethnoids, sphenoids, and other sinuses normal, and the diameters of the optic foramina within the limits considered normal by Dr. L. E. White. Three devitalized and infected teeth were extracted, and the tonsils were removed. (Two days after the meeting Dr. Libby reported that the vision of this eye was two-thirds of normal.) Discussed by G. R. Warner and F. R. Spencer.

C. O. Eigler, Denver, presented a boy aged 9 years, whose vision without correction was 5-60 in each eye, and with correction 5-30, and whose fundi were remarkable for apparently complete absence of retinal pigment. The retinal vessels were narrow, and the discs pale. Discussed by W. C. Finnoff, Edward Jackson, J. A. Patterson, Melville Black, and W. H. Crisp.

W. C. Finnoff, Denver, presented a man aged 31 years who from time to time since 1916 had had mild attacks of disturbed vision of the right eye, with fine vitreous floaters, and more recently some small cortical lenticular opacities. There was a round patch of chorioretinal degeneration to the temporal side of the macula, and a number of smaller patches of atrophy above and below the macula, only one suggesting activity. There was probably mild tuberculosis of the right apex, and on this account tuberculin had not been resorted to, although the eye lesions were probably tuberculous. Discussed by Melville Black.

J. A. McCaw, Denver, presented a youth aged 19 years who had night blindness and a contracted visual field. A paternal uncle had a similar condition with a high refractive error. The choroidal pigment was rather freely visible, and the retinal vessels were contracted. Discussed by G. F. Libby and W. H. Crisp.

D. A. Strickler, Denver, presented a woman aged 57 years who had had several attacks of severe inflammation and disturbance of vision of each eye. An atrophic area had developed in the right iris. In October, 1924, she had had a sudden severe attack of iridocyclitis. An old root of a tooth was extracted and showed a large pus sac. Recently there had been another severe attack in association with a tonsillar abscess and both lenses had become distinctly cataractous.

Melville Black, Denver, presented a man aged 74 years who had come in October on account of a corneal ulcer which had gradually involved the whole cornea, in spite of a great deal of vigorous treatment. The ulcerated area had been covered by a yellow exudate which could be washed or wiped away, exposing a red granular area beneath. The complete destruction of the superficial layers

of the cornea had perhaps taken about six months.

L. L. Herriman, Alamosa, presented a youth whose palpebral conjunctiva showed a pale, smooth hypertrophy somewhat resembling trachoma, and with slight purulent secretion. There were some signs of scar tissue in the culs-de-sac. Discussed by J. M. Shields and W. H. Crisp.

WM. H. CRISP,
Secretary.

DELTA COUNTY

The Delta County Medical Society met in regular monthly session at Delta, Colo., Friday, February 27, 1925, the newly elected president, Dr. L. A. Hick, presiding. After a banquet at the Delta House, a scientific program was presented. A paper entitled "The Intravenous Use of Mercurochrome 220 Soluble" was read by Dr. A. W. McArthur. Members present: Drs. L. A. Hick, W. A. Day, Harry A. Smith, Lee Bast, C. H. Burgin, Jas E. Burgin, A. E. Miller, W. S. Cleland, and A. W. McArthur, Delta; H. W. Hazlett, Paonia; W. C. Copeland and J. T. Meyers, Hotchkiss; L. C. Bolton, Cedaredge.

H. A. SMITH,
Secretary.

THE PUEBLO CLINICAL AND PATHOLOGICAL SOCIETY

Met in regular session at the Congress hotel January 14, 1925, for dinner and business session.

Dr. H. T. Low, president of the Arkansas Valley Medical Society, announced a meeting in Colorado Springs for February 13, 1925. He also announced that Dr. E. S. Kenyon and another speaker from Chicago would be on hand to lead out on subjects in which they are particularly interested.

Dr. W. F. Singer gave a very brief review of "Practical Cytology," covering involution, chemistry, and psychism of cell life and function.

Dr. Crum Epler led a discussion on "Gastric Lues From a Surgical Standpoint." He holds that it is a much more common condition than is generally considered. No clinical pathognomonic symptoms. The antrum of the pylorus is the most common seat of the trouble. If it remains untreated gastric symptoms will arise—mostly mucous. Gummatus lesions are frequent. Fibrosis of submucous areas causes stenosis which diminishes the capacity of the stomach.

Gastric crises come on from two to five years after the initial lesion; or, if hereditary, before second year of life. He believes that all perforating ulcers in subjects under thirty years are syphilitic in origin. Two outstanding symptoms in the tertiary cases: anorexia with lack of free hydrochloric acid, vomiting, hemorrhage, etc.; and loss of weight with distress in stomach, cachexia, enlarged liver, etc.

Serology is unreliable, Wassermann often not positive. These cases are good surgical risks. Reported four cases—two pylorotomies and two gastroenterostomies.

Dr. T. A. Stoddard reported a case of gastric hemorrhage in a luetic. Autopsy showed no ulcer, but extensive varicosities over cardiac end of stomach.

Dr. D. E. Hoag reported "Two Mistakes"; the first a carcinoma of inferior maxilla which had been operated twice, subjected to radium treatment—all with no benefit, finally dying when a plastic operation was attempted. The second was a case of compound fracture of left leg, followed

by gangrene—and death from hemorrhage when an amputation was attempted.

Dr. J. H. Woodbridge reported on a recent trip to Rochester and Chicago. Outstanding features of his talk to effect that many incubator babies live but must have mother's milk; and that the latest treatment for infantile eczema is daily applications of pure crude coal tar.

The Pueblo Clinical and Pathological Society met at the Congress Hotel on the evening of February 11, President Wallace in the chair. Dr. F. M. Heller was appointed critic for the evening. Drs. Alexander of Santa Fe, N. Mex., and Knowles and Gilmore of Colorado Springs were present as guests.

Dr. H. A. LaMoure reported a case of attempted suicide by poisoning on the part of a woman who had been in the State Hospital. She was 30 years of age, plus four Wassermann—had so far improved as to be considered safe and was allowed to be taken away by her husband. She was seized with a sudden impulse to commit suicide when alone and drank two ounces of carbolic acid; then followed (in order named) coal oil, gasoline, and "white mule." Complete recovery followed.

Dr. H. T. Low reported a case of "Diverticulum of Urinary Bladder." A man aet. 59 had been operated for stone in the bladder. A year later had a prostatectomy. Following he had a purulent discharge from bladder, pussy urine, and frequent urination. Capacity of bladder two ounces. It was several months before he could be cystoscoped, at which time an opening was found into a diverticulum; pelvis of left kidney was dilated. The urine contained colon bacilli, staphylococci, and streptococci. Cystogram showed irregular bladder wall and a stone in the diverticulum. Chief symptoms were those of a cystitis. They form near one or the other ureteral orifice. One case reported with two diverticuli. They may be congenital.

Dr. J. J. Pattee reported a case of "Epithelioma of Turbinate and Septum" in a man aet. 34 and otherwise healthy. In May, 1923, he began suffering from a nasal obstruction and had a denuded and deflected septum. Simultaneously had an epithelioma of lower eye lid. Excised both foci middle turbinate on basal epithelioma. Recurrence of nasal tumor with secondary symptoms. Case referred for radium treatment and after four months is apparently well. Four cases referred for radium treatment and all much improved.

Dr. F. J. Peirce reported a case of "Mycosis Narium" in a woman aet. 40 who had had a nose bleed for four days—an ozena case. Treated by chloroform and glycerin in mineral oil. In all 265 worms were extracted. Some southern physicians treat these cases with insufflations of powdered calomel. Once the worms enter the sinuses the only cure is by radical operation, which may be followed by secondary meningitis.

Dr. Burkhardt gave a review of Dr. Ludwig Aschoff's "Lectures on Pathology." He said they were very technical, but scientific and intensely interesting.

The secretary read a letter from Dr. T. A. Stoddard, who is sojourning in Florida during February.

R. C. ROBE,
Reporter.

ROCKY MOUNTAIN PEDIATRIC

A regular meeting of the **Rocky Mountain Pediatric Society** was held at the Children's Hospital, Denver, on January 17, 1925. The meeting was well represented by out of town members. The program was as follows:

Dr. Esserman reported an interesting case of congenital heart disease, with a tentative diagnosis of pulmonary stenosis and patent ductus arteriosus.

Dr. Eastlake showed and reported upon an early case of Pott's disease of the eleventh dorsal vertebra. This case was demonstrated by Dr. Robert Packard, who also showed two post-operative cases of the same disease following Hibb's fusion operation.

Dr. Amesse reported a fatal case of miliary tuberculosis which followed influenza and pneumonia. The von-Pirquet test was negative. The spinal fluid examination showed thirty-five cells, all of which were mononuclears. There was also a positive sugar test in the spinal fluid, child dying of tubercular meningitis.

Dr. Berryman Green demonstrated a case of hilus tuberculosis with acute lobar pneumonia superimposed. Child of six years, from a tubercular family, running an acute suppurative temperature. The x-ray showing hilus tuberculosis, with consolidations of the upper right lobe.

Dr. R. P. Forbes reported a case of broncho-pneumonia and encephalitis. This was a child of three years who had been sick for ten days with sore throat and fever, unconscious for five days. Physical examination showed double suppurative otitis media and broncho-pneumonia. Laboratory examination showed negative cultures, 38,000 white blood cells, with a 57 percent poly count. Spinal fluid was under pressure with a count of fifty cells. Autopsy verified the diagnosis.

The meeting was followed by a dinner at the Denver Athletic Club.

The regular monthly meeting of the Rocky Mountain Pediatric Society was held at the Children's Hospital on Saturday, February 21, from 4:30 to 6 p. m. A small attendance was recorded and the members are urged to support the society in a better manner in the future.

The scientific program was as follows: Dr. E. Friedman showed a very interesting case of recovered acute endocarditis. This case was especially interesting, inasmuch as it at one time was thought to have been a malignant endocarditis.

Dr. H. C. Brown demonstrated a typical case of amaurotic family idiocy. This was a child of 14 months of age, the disease being first noticed ten months previously. He exhibited the usual signs, such as cherry red spot in the macula of the eye, loss of vision, spasticity and fat deposits over the hips.

Dr. Roy Forbes demonstrated a six-months-old baby with habitual vomiting. X-rays were negative for stenosis or spasms. Artificial feeding was a failure until a butter flour mixture with whole milk was used. On this feeding the baby has made a total gain of thirty-three ounces in twenty-one days.

Dr. Roy Forbes demonstrated a child of 13 months which exhibited a temperature of 105, grunty respiration and tenderness in the right lower quadrant of the abdomen upon first admission. Abdominal tenderness disappeared upon rectal irrigation. Bilateral acute otitis media was found and paracentesis done. Von Pirquet negative. On second admission no moisture was found

in the lung but marked perivertebral dullness could be demonstrated. A second von Pirquet was found to be suspicious. Inasmuch as the father had advanced tuberculosis a definite diagnosis of whether this condition was due to the ears or to a hilus tubercular could not be made.

Dr. Forbes and Dr. Gengenbach demonstrated three cases of coeliac diseases in varying stages of development. All of these cases showed the typical chain of signs or symptoms. A discussion of the new treatment of Dr. Sauer of Chicago using a three-stage hypoprotein diet, followed.

Dr. Amesse demonstrated a case of mongolian idiocy of five months.

The meeting was followed by a dinner at the University Club.

JAS. E. RUSSELL, JR.,
Recorder.

SAN JUAN

New officers of the San Juan Medical Society: E. E. Johnson, Cortez, president; A. J. Nassaman, Pagosa Springs, first vice president; J. R. Trotter, Mancos, second vice president; H. A. Lingenfelter, Durango, secretary-treasurer.

COLORADO GENERAL HOSPITAL

The Hospital has been opened now for a period of nearly three months, and a resume of what has been accomplished will no doubt be of interest to the physicians of the state at large. On the opening date, December 15, 1924, one patient entered, and for some time afterwards increase in the number of patients was slow.

However at the present time the following report as given out by the superintendent of the Hospital will show that the citizens of the state are beginning to recognize and to appreciate the advantages which are available to them, also that a considerable percentage of the counties of the state are represented.

Number of counties in the state	63
Number of counties represented to date....	26
Number of Patients received in Hospital..	231
Number of Patients at present in the Hospital	64

The growth of the Out Patient's Department, which is in connection with the Hospital, has been parallel with that of the latter institution. This department was carried on for many years at locations near the center of the city.

When the old location was closed, and the department opened in its new quarters on October 20, 1924, it appeared for some time that the marked falling off in the number of patients in attendance at the various clinics as compared with the attendance at the old location would continue for some time. However at the present time the average daily attendance is equal to the best figures for the old location.

The third institution in connection with the Hospital is the School of Nursing. At the present time there are seventeen pupil nurses and probationers who have the full facilities of the Hospital and the School of Medicine, under close supervision of the Director of the School.

In close connection with the above institutions is the Colorado Psychopathic Hospital. This building is located on the same plot of ground with the other institutions. It was opened on February 15, 1925, with Franklin G. Ebaugh, M. D., Director.

The number of patients admitted within the short period of time covered by the report from February 15 to March 2 is 32. These came from six counties scattered thruout the state. Within a short time an Out Patient's Department is to be started in connection with this institution.

E. R. MUGRAGE.

AMERICAN BOARD OF OTOLARYNGOLOGY

The American Board of Otolaryngology will hold its first examination during the Meeting of the American Medical Association in Atlantic City, May 25th to 28th.

According to the rules of the Board, applicants are divided into three classes.

Class I. Those who have practiced Otolaryngology ten years or more.

Class II. Those who have practiced Otolaryngology five years and less than ten years.

Class III. Those who have practiced Otolaryngology less than five years.

The type of examination is different for each class.

The secretary, Dr. H. W. Loeb, announces that thus far over 300 applications have been made.

HEALTH FOOD

The doctor is sure that my health is poor, he says that I waste away; so bring me a can of the shredded bran, and a bale of the toasted hay; O feed me on rice and denatured ice, and the oats that the horses chew, and a peck of slaw and a load of straw and a turnip and squash or two. The doctor cries that it won't be wise to eat of the things I like; if I make a break at a sirloin steak, my stomach is sure to strike; I dare not reach for the luscious peach, or stab at the lemon pie; if I make a pass at the stew, alas! I'm sure to curl up and die. If a thing looks good, it must be eschewed; if bad, I may eat it down; so bring me a jar of the rich pine tar from the Health Food works up town; and bring me a bag of your basic slag, and a sack of your bolted prunes, and a bowl of slop from the doctors shop, and ladle it in with spoons. I will have to feed on the jimson weed, and the grass that the cows may leave, for the doctor's sure that my health is poor, and I know that he'd not deceive.—Walt Mason.

EATING TOO MUCH

I eat too much, the doctor tells me; with arguments like this he quells me, when I inform him that his potions, of which I've swallowed endless oceans, don't cure my shingles, mumps or tetter, or make me feel the least bit better. "There'd be less sickness, grief and wailing, there'd be less suffering and ailing," the doc says, pausing in his carving, "if men would leave the table starving. Oh, let your meals be slim and meager; quit eating while you still are eager for more roast beef and spuds and gravy, and beans—the kidney kind or navy. Oh, leave the table while you're hollow, and while you still desire to swallow the bill of fare from A to Izzard, from soup right down to chicken gizzard. Then you'll be cured of your diseases, as laundered dog relieved of fleas is." Thus do the wise and learned physicians attack the modern-day conditions. We cure ourselves, by means distressing, and pay the doctor for his guessing.—Walt Mason.

Colorado Medicine

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EDITORIAL NOTES AND COMMENT

Pico Passes

Anti-vivisectionists are greatly exercised at the Passing of Pico. Pico was the pet dog of Diana Belais, a celebrity of the anti-vivisection world. Pico fell down an elevator shaft, and so onward to eternity. The "Open Door" has since been full of piffle pertaining to Pico. Witness this:

"I really cannot refrain from writing you a note of sincere sympathy on 'The Passing of Pico.' I quite agree with you when you say that 'my soul heard Pico's cry from his soul.' The soul is the real self. The affection, intelligence and courage of Pico are not dead. They are still clothed in a body of some subtle, tenuous, etheric material. It will take quite a long time yet to make it clear to certain dog lovers why anti-vivisection? Why kindness to animals? One reason is: Because they, too, have souls."

Wrong-Headed

Humanitarians propose to erect a statue to Balto, the leader of the dog team that made the renowned trip to Nome, carrying diphtheria antitoxin.

An organization calling itself the Citizens' Medical Reference Bureau voices its protest, impugns the efficacy of antitoxin, and engages in anti-medical warfare. This is the "extreme of nonsense," says the New York Tribune, which characterizes the antis as "wrong-headed zealots."

Protecting Science

Lords Banbury and Lambourne introduced a bill into the British Parliament to prevent vivisection of living dogs.

Arguments showed that animal experimentation protects human life and health, and the bill was defeated by 77 votes to 8.

Realities

Some years ago an animal paradise was created for the deer on the government preserves of Kaibab Plateau. Predatory animals were exterminated, hunters were barred, and the deer lived at peace. An idyllic life—such as the tenderest humanitarian might wish! But under these sheltering circumstances the deer have multiplied so rapidly that they are now threatened with starvation.

There are grim realities in life that even a deer cannot escape.

Special Legislation

Special legislation is sometimes employed to admit men to the back door of the medical profession, when they are unable to pass the main entrance guarded by an examining board. Governor Tom Terral of Arkansas has won the applause of the medical profession of his state by applying the veto to private bills furnishing the back door passport.

The Arkansas Medical Journal prints a letter from a "physician" applying for a legislative license:

"Mr. Senator—I sent Senator ——— a petition with 85 or 90 and 3 doctors and he told me I would have to get you to introduce it in the House.

"Look at my Petition and Try to get my Bill through, the way I am having to Wait

' on Woman I arnt got no show to give them Justice under the law I cant Bye Eney Opi-atee nar Chloroform.

"i am to old to Be a Surgal Doctor if it Makes Eny Difference Just Leave that out."

Health Legislation

Two thousand bills were presented at the recent session of the California legislature. More than 10 per cent of them pertained to health. They were of all kinds—constructive, destructive, and vicious.

A digest of more than a hundred of these bills was prepared by the League for the Conservation of Public Health, and in a measure the public was kept informed of legislative doings.

Health Talks

A year ago the Denver County Medical Society initiated a series of popular health talks. At the first lecture the attendance numbered very little more than a hundred, and the project seemed a failure. But as the talks continued the audience increased, and the average attendance now numbers a thousand. The subject of health has been popularized, and other organizations, such as the Kiwanis Club, and the Y. M. C. A., are now conducting their own health lectures.

The Boulder County Medical Society has lately taken up health talks, and the prospects seem good for the growth of the work throughout the state.

Hunting Bugs

The Sixty-eighth Congress has provided a fund of \$75,000 to send pathologists to Europe to study foot-and-mouth disease. The men selected for the work are P. K. Olitzsky of the Rockefeller Institute, Dr. Jacob Traum of the University of California, and Dr. Harry W. Schoening of the Bureau of Animal Industry. These workers will go first to Berlin to investigate the research that is reported to have led to the identification of the causative organism. They will afterward work in Hungary and France.

The Department of Agriculture refuses to permit experiments with foot-and-mouth

disease in this country, owing to the highly contagious character of the virus and the difficulty in keeping it within bounds.

Malaria in Greece

Greece continues to be troubled with malaria. When the American Red Cross withdrew from its work in 1923, it presented ten tons of quinine to the Greek government for relief of victims. Other contributions of quinine have been made by the Red Cross—one a few months ago consisting of 14,000,000 five-grain tablets. From this enormous consumption of quinine, it would seem that malaria prevention has made little headway.

Low Birth Rate Nations

At the recent sixth international Neo-Malthusian and Birth Control Conference, Harold Cox, editor of the *Edinburgh Review*, recommended a league of low birth rate nations to prevent over-population of the world. Said the speaker:

"By no device and by no postponement of ugly questions can we escape the two facts that the surface of the earth is limited and that man's powers of reproduction are practically unlimited. Consequently if the different races of the world continue to expand without regard to the growing shortage of space, a time must come when they will be compelled to fight with one another for room to live.

"The obvious way of avoiding this otherwise inevitable catastrophe is for the nations to agree with one another to impose some restraint upon their growing numbers."

Limited Food

Professor Edward Penck, speaking before the Prussian Academy of Sciences, makes the statement that the world's maximum potential food supply is adequate for only eight or nine million people.

This population will be reached in approximately 300 years, if the present rate of increase is maintained. Professor Penck offers the consolation that synthetic foods may be discovered in the meantime.

Caduceus Wild

Time was—not far distant—when the caduceus on an automobile identified the physician. But times have changed, and the insignia now frequently distinguishes the masseur, the corset-fitter, the second-hand purveyor, or the chap that married the doctor's widow.

No copyright was obtained for the original emblem, and the disposition of the badge was poorly controlled.

The A. M. A. has now changed the design and secured a copyright. The new emblems will be numbered and the sale registered, so that responsibility may be fixed if the caduceus wanders into illicit channels.

SECRETARY'S NOTES

RAILROAD RATES TO ATLANTIC CITY

The date of the annual meeting of the American Medical Association at Atlantic City will bear repeating. It is May 25-29.

There are two ways of securing reduced rates. One is to take a short limit round trip rate of a fare and a half on the identification certificate plan, which means that the doctor must obtain a certificate when he purchases his ticket that must be certified at Atlantic City before he uses the return portion. He does not require any identification when he purchases the ticket. Those tickets will be on sale in Colorado May 18-24, inclusive, with final return limit June 6th. The other plan is to take advantage of the regular summer excursion tickets which can be purchased on May 22d and thereafter with a return limit October 31st. The rates on all roads are approximately the same out of Denver.

The following letter from the Burlington railroad, an advertiser in Colorado Medicine, is quoted:

"Commencing May 22d, we shall have in effect a fare of \$114.91 from Denver to Atlantic City and return, applying for ticket reading via the Burlington to Chicago, thence the B. & O. or the Pennsylvania.

"Tickets will bear final return limit of October 31st and will be good for stop-

overs at all points en route, both going and returning, within this limit.

"In case it is desired to include New York City, this can be done at a total cost of \$121.39, round trip.

"The rate for a lower double berth in a standard sleeper from Denver to Atlantic City is \$19.88; for upper \$15.90; for drawing room \$70.50.

"Our observation sleeping car train, the Overland Express, leaving Denver daily at 11:00 p. m. (sleepers ready at 9:30 p. m.), arrives Chicago at 7:00 o'clock the second morning, making connection with Pennsylvania Manhattan Ltd., leaving Chicago at 10:30 a. m., arriving Atlantic City at 11:05 the next morning.

"I am advised that the Pennsylvania will operate a special A. M. A. train leaving Chicago at 8:00 p. m., May 24th, arriving Atlantic City at 5:25 p. m., May 25th. No extra fare. To make this connection, of course, delegates should leave Denver on our 11:00 p. m. train May 22d, giving them an opportunity of spending the day on May 24th in Chicago.

"If later on you can give me a list of the doctors who expect to attend the meeting in Atlantic City, I shall be very glad to get in touch with them and help them plan their trip.

"S. H. Drury, General Agent, Passenger Agent.

"By F. W. Johnson, City Passenger Agent."

With regard to the last paragraph in the letter, it is the Secretary's understanding that a minimum of twelve doctors can charter an exclusive Pullman car to Chicago, which can be used as a sort of a club car for the trip that far. The secretary of the Denver County Society, Dr. L. V. Sams, Metropolitan Building, Denver, has been asked to investigate this feature of the trip and if physicians in other cities wish to take advantage of the club car, they should correspond at a very early date with Dr. Sams and arrange to be present in Denver to take the car at the appointed time.

Watch the A. M. A. Journal for information on hotel reservations, scientific program, etc.

F. B. STEPHENSON,
Secretary.

REMARKS MADE ON THE OCCASION OF THE DEDICATION OF THE COLORADO GENERAL HOSPITAL AND SCHOOL OF MEDICINE ON JANUARY 23, 1925

W. S. THAYER, M.D., HON. F.R.C.P.I.

Twenty years ago at St. Louis I pointed out the contrast between the definitions of medicine in two French dictionaries published one hundred years apart.

In the Dictionary of the Academy published in 1789, one may read these words: "Medicine * * * the art that teaches the method of preserving the health and healing diseases * * * (Medicine is a conjectural art)."

And one hundred years later in Littré's Dictionary: "Medicine * * * the art which aims at preserving the health and healing diseases, which is based on the science of diseases or pathology."

The first definition was not quite fair, for already, in 1789, there had been for centuries those who had carefully observed and recorded and reasoned, and laid unshaken foundations for the scientific basis on which the medical art has come to rest. But the dramatic contrast between the medicine of the French Revolution and the medicine of one hundred years later was hardly exaggerated.

Fifty-one years ago, in but a few weeks, the association between two great men began with this letter to Louis Pasteur:

*"My dear Sir: Will you allow me to offer you a pamphlet which I am sending you by the same post, which gives an account of some studies on a subject on which you have shed so much light, the theory of germs and fermentation? I like to think that you may read with some interest that which I have written on an organism that you first studied in your memoir on so-called lactic fermentation.

"I know not whether the British Annals of Surgery have ever come under your observation. If you happen to have read them you have probably found, from time to time, notes on the antiseptic system which I have been putting to the test during these last nine years.

"Let me take this occasion to offer you my most cordial thanks for having demonstrated, by your brilliant researches, the truth of the theory of the germs of putrefaction and of having thus given me the only principle which could bring an antiseptic system to a satisfactory completion.

"If you should ever come to Edinburgh it will, I fancy, be a real pleasure for you to see at our hospital, in what large measure the human race has profited by your work. Need I add what great satisfaction I should feel in showing you here that which surgery owes to you?

"Excuse the informality which springs from our common love of science, and believe in the deep regards of

"Your sincere

"Joseph Lister."

This was scarcely fifty years ago. Pasteur was striving, with but mediocre success, to impress on his surgical friends the necessity of antiseptic precautions. Think again of the progress of the art of medicine in its broadest sense and of its scientific foundations in these fifty years!

'Twas but yesterday—forty years ago—that I entered the school of medicine. It is interesting to recall the difference between the study of medicine in 1885 and today.

Forty years ago there were, connected with the few best medical schools in the country, good laboratories for the study of two of the fundamental medical sciences—*anatomy* and *physiology*. *Pathological anatomy*, although in Europe studied as a science, was, in most American schools, still taught by practitioners. The science of *bacteriology* was in its infancy.

In the medical wards of the hospital, instruments of precision were limited mainly to the thermometer and the stethoscope. The ophthalmoscope, the laryngoscope, the otoscope, were rarely used other than by the specialist. Endoscopy in all its forms was practically unknown.

The laboratory for the entire medical and

*This is translated from Vallery-Radot's *Life of Pasteur*. I know not whether the original was in French or English.—W. S. T.

surgical service when I began my hospital internship consisted of a room about fifteen feet long by six feet wide, including the hood, with one window. It was used for simple clinical examinations of the urine and an occasional blood count and haemoglobin estimation.

He who began the study of medicine too often entered the school with no knowledge whatever of chemistry; and the instruction was limited to a few months' course in qualitative analysis, a few months' training in the examination of urine, and a few lectures on the theory of organic chemistry. It was only in the laboratories of the departments of physiology, anatomy and pathological anatomy that the student might have been lured toward a purely scientific career.

Consider the growth of the scientific foundations of medicine since that day—the growth of our knowledge of bacteriology and the relation of infection to the diseases of man and animals, of serology—the increase in our knowledge of physics and chemistry and their application to all manner of anatomical and physiological problems, normal and pathological, to pharmacology, to bacteriology, to serology, to diagnosis—the aid brought to the medical art through the introduction of such physical methods of investigation and of treatment as have sprung from the application of galvanometry and roentgenology.

These winged forty years have seen the entry into medicine of many methods of precision, accurate quantitative chemical and physical procedures, and alongside of the laboratories of pure science in the university, laboratories of applied science have found their way into hospital clinic, and, indeed, into the doctor's consulting room.

All this has greatly strengthened the arm of the physician. It has taught him the cause and methods of prevention and sometimes of the arrest of many of the gravest scourges of mankind; it has explained the nature and pointed to the means of prevention of previously baffling manifestations of disease; it is revealing daily new problems which must be solved. It has greatly strengthened the arm of the doctor, but it

has placed upon him heavier and heavier responsibilities.

It is far beyond the power of one human being to master the whole domain of medicine. In the university, in the hospital, in practice, individuals **must** of necessity, limit their activities more and more to special provinces of the science or the art. And more and more is division of responsibility and co-operation necessary in medicine as in other spheres of life.

Along with the advances in our knowledge of the natural sciences there have appeared in the world of industry those amazing mechanical devices which have resulted in an increasing delegation of responsibility and division of labor. By the use of complicated machines and by the co-operation of a relatively small number of individuals, each devoting himself to one little division of the work, the finished automobile is constructed in an incredibly short period of time and at a remarkably small expense. That automobile answers its purpose; it has been a boon to mankind. So it is in all branches of industry. The world is flooded with machine-made products which answer their purposes. Labor-saving machines have, in a sense, transformed the industries. Where, in the past, at a considerable expense, an article made by careful individual workmanship, an article that lasted a lifetime, could be obtained by the few; now the many may, at a minimal cost, obtain a like product made by machinery, inferior, to be sure, and lasting but a year or two, but answering its purpose—a blessing in its way to the world at large, but not an unmixed blessing. For society is becoming standardized in its use of inferior products, so accustomed to them and so well satisfied with them that the distinctions between the real and the shoddy are barely appreciated by the many.

Modern industry in great part strives to produce in mass that which will answer its purpose; that which "will do."

Scientific progress in the industries has brought labor-saving devices, division of labor and mass production; but the skilled mechanic and his lasting creations are vanishing.

In medicine it is different. The increase

of knowledge has of necessity brought with it specialism. In the thorough investigation of a given case, the conscientious physician must often consult colleagues specially competent in special branches. The multiplication of instruments of precision and of accurate quantitative methods in medicine have increased the doctor's opportunities; but they have also increased his duties and responsibilities.

There is no short cut, there are no labor-saving devices in medicine.

It cannot be denied, however, that there prevails to a certain extent in and out of the medical profession an odd misconception that the laboratory has supplied us with something absolute which does away with the necessity for careful clinical study.

The patient treasures as a talisman huge sheets setting forth in figures the results of examinations which are beyond his powers of comprehension—figures, which alas, evoke sometimes disastrous mental conceptions. The doctor, as in one instance which I remember, is quite satisfied that his patient has typhoid fever because of a report from the City Health Department that the Widal reaction is positive, despite the evidences of a bacterial endocarditis which stare him in the face.

What a familiar phenomenon it is! And how grave sometimes!

There is nothing absolute in medicine. The human element enters into it at every turn.

We doctors are human beings. Our patients are human beings. Our instruments are devised and made and used by human beings. The results of our tests are read and interpreted by human beings. Fallibility is human!

The doctor himself must watch and weigh every incident in the course of the disease. He must know when he needs assistance and from whom to seek it.

Figures and words! How we human beings love them! Figures and words suggest the absolute. The "diagnostic clinic," for instance—wonderful words! Of what value to the thoughtful physician are volumes of special and laboratory reports if

he knows not who made them and the conditions under which they were made?

The growth of those absurdly mis-called "diagnostic clinics" with too widely delegated responsibility is a sad evidence of our thoughtless subjection to the greatest of human tyrannies—the tyranny of words. The difference between the diagnostic opinion of one wise man who may be counted upon not only to give of his own knowledge and experience but to seek that of others when it is needed—the difference between the diagnostic opinion of one wise man and the sheets setting forth a so-called "survey" from the average "diagnostic clinic" or the advertising institute is the difference between light and darkness.

A machine-made diagnosis is a shoddy product; it does not wear well and it rips on the first strain. More than this, it is dangerous; it will not do.

Where forty years ago the questioning, the examination, the observation, the study that enabled a conscientious physician to give his patient his best advice was often a relatively simple matter, today it may be a long and laborious problem, time-taking and expensive.

The multiplication of scientific methods of investigation has not transformed; it has broadened the art of medicine. In so doing, it has not diminished; it has increased the duties and the responsibilities of the practitioner, who, today, must have a much better general and special education than forty years ago.

Today the practitioner must, as ever, have a sufficient knowledge of the strictly fundamental medical science—biology, anatomy, physiology, bacteriology, serology, pharmacology. But to understand these and appreciate the significance of, if not actually to carry out himself, a large number of diagnostic and therapeutic procedures, he must have no inconsiderable knowledge of mathematics, of modern physics and chemistry, inorganic, organic, physical.

And that which should never be forgotten, but sometimes is forgotten—**this larger scientific basis saves not one hour of the necessary training and experience in the art of**

physical diagnosis and in the study of disease at the bedside, of that sympathetic contact with suffering men and women through which alone efficiency in the art of medicine can be attained. Not all the chemistry and physics in the world can make a good diagnostician or a good practitioner or a good teacher of him who is not at home by the bedside.

The greatest defect in the teaching of medicine in America today is the lack of sufficient training in habits of accurate clinical observation and description and in the art of physical diagnosis. It is constantly exemplified by the surprise of the student at the evidences of the acuteness of the observation of the students of a hundred years ago. Sometimes I wonder if our carelessness in this most vital part of the training of the doctor is not perhaps a part of a general tendency of the times, a tendency to delegate responsibility, to accept anything that "will do", material, intellectual or moral; to be satisfied with quantity rather than quality; too great a readiness to accept, thoughtlessly, the easier way, as, for instance, is exemplified by the rather simple performances of some who practice the so-called "simplified spelling". It is, by the way, hardly conceivable that that man could be capable of discriminating clinical observations who would substitute "thru" for "through".

But to return to our main theme. As the duties and responsibilities and opportunities of the physician and the surgeon have increased, so also has the scope of the university school of medicine and the university hospital broadened.

The hospital is the heart of the school of medicine. The first and fundamental function of any hospital is the care of the sick. For this the university hospital should be peculiarly well prepared.

The care of the sick should be carried out best by men who have the best fundamental knowledge of the medical sciences, combined with experience in the art of practice—who have at their disposal adequate means for the thorough observation, study, investigation and treatment of their patients. "Adequate means" signifies today

a rather elaborate equipment in the way of instruments of precision and of laboratories in which the examinations and studies necessary for the routine conduct of the clinic may be made, and in which special investigations may be carried out under special circumstances. These laboratories will and should vary in various clinics. The simplest form is the single clinical laboratory with a suitable personnel capable of carrying out those routine examinations of excreta, secreta, and body fluids which may not be done in the wards. In many university clinics there will arise in connection with the medical service special chemical, bacteriological and serological laboratories which are really laboratories of applied science. These will be presided over by men who, while yet taking part in the clinical activities of the department, are especially interested and qualified students of one special branch of medicine, chemical, biological, physical, as the case may be. Such students and teachers demand adequate salaries, for in their positions they will and do devote many years of their lives to scientific and practical studies in ward and laboratory, to the great advantage of the hospital and the school.

The laboratories associated with one good medical clinic will doubtless differ somewhat in number and character from those of another. It is well that this should be so. According to the special competence of individuals, and subject to special conditions which may exist in a given clinic, special laboratories and divisions of the medical service may rise for the temporary or continued study of special problems:—tuberculosis, syphilis, cardiac disease, for instance.

Then the professor of medicine must have an adequate number of junior assistants to help in the study and observation and care of his patients, in recording their progress and especially in making routine minor laboratory examinations. Outside of the regular hospital interne, this desideratum is very difficult to fill fully in other than a university hospital. Here, however, it is filled as nowhere else, by advanced students. These men supply a body of unequalled junior assistants, such as can be obtained in no other

way. The employment of the advanced student as ward assistant, a clinical clerk, as they say in England, has brought the greatest single improvement in our ability properly to care for the sick that has been introduced in this country in my lifetime. I have known wards with and without student assistants; I have known wards in term and out of term time; and I know full well how much better are the chances for recovery of the patients in a ward with student assistants than in a ward attended by the interne alone. When I am ill let me be cared for where there are student assistants!

The second function of the university hospital which is really co-ordinate with the first—the care of the sick—is the teaching of medicine. The requisites for the two functions are essentially the same. The wisest teacher is almost always the wisest physician. The wisest physician is always a student. And in order to obtain his services as a teacher, the university must offer him opportunities to continue his studies as well as opportunities for the observation and care of the sick. This means a suitable equipment in the way of instruments of precision, laboratories, and associates to preside over these laboratories, with adequate salaries to support the group of senior associates and assistants who will preside over special divisions of the service and special laboratories of applied science and for many His department must be a clinical centre toward which physicians and patients in the community turn for special advice. Associated with the department of medicine of years may give their time largely or entirely to hospital practice and teaching and research.

Of primary importance is it that the professor of medicine should have under his control clinical material sufficient to allow him to utilize his full staff. The professor himself can do but a small part of the necessary teaching. The same will be true of the senior associates in charge of the special divisions of his service. The professor must be afforded opportunities to associate with his clinic the necessary group of clinicians. the university must be clinical professors

who are the recognized leaders in their art.

This is vital for the student, for from the example of the experienced clinician he can best acquire proficiency in the art of medicine.

It is vital for the senior associates who must be relieved from unnecessarily arduous clinical duties and should be afforded opportunities to gain themselves that clinical experience and competence which they will ultimately need.

It is vital for the clinic itself, because if the Department of Medicine of the University be not the recognized clinical centre of the community, it will be unable to command the personnel that it should have; it will be unable to do its full duty to patient, to student, or to the community; and it will be in grave danger of falling into isolation and mediocrity.

The third great function of the university clinic is that of research. Research means study, analytical and experimental, in ward, in laboratory, in consulting room. A clinic that is properly equipped for the care of its patients and for teaching will be properly equipped for research. The qualified teacher in any branch of medicine is of necessity a student. There is no place in the medical school of today for the mere vulgarizer of knowledge. What we try to do today is not to feed the student with assertions but to teach him how to teach himself. We seek to teach him methods and encourage him rather to doubt and to prove for himself the truth or error of the assertions of others.

The modern school of medicine and the modern hospital should make it possible for the members of the staff to pursue research, to study their problems more thoroughly by increasing their freedom, in every possible way, through adequacy of salary and through affording opportunities in hospitals and laboratories for post-graduate study in the shape of fellowships and voluntary assistantships which enable the chief to contribute to the advances of the medical science and art through the active work of the increasingly large body of young men who are every day seeking the opportunity to give their time to the elucidation of

special problems under the advice and direction of a master.

It is, I believe, greatly to the advantage of hospital and university that special opportunities be afforded the head of a department and his chief associates for holding such consultations as they may desire to hold at the clinic. This is time saving; it centralizes the work of the teachers at the point of their main activities and it brings to the clinic an invaluable stream of selected cases of special interest—special problems referred to them by their colleagues from near and far.

Much of such material may not be directly utilizable for teaching purposes before the general student body but it is invaluable for the staff, especially those members of the staff who are studying special problems.

Every effort should be made to free the chief of a service from unnecessary responsibility or anxiety, for the multiplicity of duties falling on the shoulders of the director of a large department of medicine which today have come to be a rather heavy load.

The recognition that such men must be adequately salaried is a great step forward.* But beyond this the question as to how to deliver the director from the whirlpool of administrative duties is puzzling and serious.

* * * * *

I have said enough. There is no fixed model; no one way by which alone medicine can be or should be taught. I have given you a few of the thoughts which have arisen from my own experience. You have the opportunity under exceptionally favorable circumstances of solving the problems in your own way.

The sight of these beautiful buildings, the conversation with these privileged friends who have the chance to show to the world what they can do with the opportunities that lie before them, remind me of the

*The effort to put the medical school and medical teaching more and more on an university basis that is being made in many of our better schools is not a revolution in methods; it is an evolution springing directly from ideals which have always guided the wisest students and teachers and practitioners.

days nearly thirty-five years ago now when I first came to Baltimore, but a year after the opening of the Johns Hopkins Hospital. In those days I was but an insignificant member of the fortunate group of men who had the joy, free and unfettered, of shaping the destinies of that institution.

May you be as free! May your happiness in your work be as great! May your accomplishments be greater!

At the end of the year 1924 more than 60,000 herds of cattle containing over 1,000,000 head had been officially accredited as free from tuberculosis.

Fifty-nine mental clinics for children are now in operation in the state of New York.

A new series of French stamps has a bust of Pasteur portrayed on them.

English willow, because of its lightness and adaptability, is largely used in making artificial limbs.

There are 110 tuberculosis clinics in New York state.

Between 1918 and 1923 the death rate in diphtheria declined 10.3 per cent.

The first sale of Christmas seals was made in Denmark twenty years ago for the benefit of a children's tuberculosis hospital.

A chair of instruction in child welfare has been endowed at the University of Pennsylvania.

There are about 400 medical women in Czechoslovakia.

There are over 200 medical women in France.

There are 2,000 women doctors in Germany.

South America has 1,250 qualified women doctors.

There are eighty medical women in Switzerland.

India has about fifty medical women.

Two women doctors are practicing in Turkey.

There are 400 medical women in Poland.

There are sixty qualified medical women in Norway.

Austria has 250 women doctors.

The United States has about 5,000 medical women.

Whooping cough causes more deaths in Denmark than any other infectious disease.

Philadelphia is to have a child-guidance clinic supervised by the National Committee for Mental Hygiene.

CONCERNING WOUND-INFECTION AND THE USE OF RUBBER SPONGES IN THE CLOSURE OF DEAD SPACES, FECAL AND URINARY FISTULAE, ETC.*

LEONARD FREEMAN, M.D.

DENVER, COLORADO

One of the principal aims of the surgeon is to obtain primary union. This would be easy if wounds could be kept free from germs; but this is impossible, in spite of the most elaborate care. Contamination will occur—from the air, from errors in technique, and from many more or less undiscoverable sources. It is even probable that the patient himself often is responsible, because of bacteria in the blood or lymph, as has been insisted upon by Sir Almroth Wright and others. For instance, attention recently has been called to the danger of doing a femoral periarterial sympathectomy in the presence of a crural ulcer; and surgeons have been impressed with the increased likelihood of suppuration when operating upon patients in whom infection already exists, even though it be in the form of an acute pulmonary or gastrointestinal disturbance.

Heretofore, by centering our efforts upon operative technique, we have been able to avoid most wound-troubles, but there still remains a percentage which we are unable to control in this way. Many of these infections seem to depend so much upon conditions existing within the patient himself, that some observers are inclined to believe that the resistance of the tissues often is of more importance than all of our precautions. We know, for example, that it is dangerous to operate in the presence of diabetes, nephritis, or cholaemia, and that the risk of infection is increased by the presence of devitalized tissues, certain surgeons even claiming that by carefully avoiding traumatism, pre-operative cleaning of the skin may be disregarded with impunity!

To put the case in a few words: All wounds contain bacteria; but the occurrence of infection depends upon three things—the species of germ, the number, and last, but not least, the resistance of the tissues, which

is determined by local and by general conditions.

The local conditions are largely influenced by traumatism due to rough handling of the tissues, and anemia from tight sutures; but there is also another factor of importance, namely the presence of so-called dead spaces filled with stagnant fluid—blood, liquid fat, or serum. These dead spaces have long been feared by surgeons as breeding-places for micro-organisms. They contain devitalized fluid tissue, which is devoid of antibodies, thus favoring infection, as do stagnant fluids elsewhere in the body—in the kidney, the urinary and gall-bladders, the gastro-intestinal tract, the pleural cavity, etc.

How can the formation of these dead spaces be prevented? A number of things are possible, such as drainage, exact hemostasis, careful suturing, and external pressure.

It is to external pressure that I particularly wish to call attention. Its importance has long been recognized and at times emphasized, but it often is neglected, especially in certain regions, perhaps from lack of effective means for its application. It is easy to apply, for instance, to wounds of the abdominal wall and of the extremities, by means of bandages; but it is much more difficult in amputations and in operations for cancer of the breast, goitre, inguinal hernia, etc., because the cotton pads, upon which we rely, soon pack into a non-elastic mass, and fail of their purpose. Even tight bandaging is not always effective, besides having obvious objections in the way of anemia, discomfort, etc. The employment of wool or excelsior is an improvement upon cotton but for various reasons their use has never become general. Bags of shot have also been tried, but their pressure cannot be regulated and they are difficult to adjust and to keep in place. In plastic surgery the difficulty has been solved rather ingenious-

*Read at the annual meeting of the Colorado State Medical Society, October 7, 8, 9, 1924.

ly by applying to the surface of skin grafts "forms" of dental wax ("stint") which previously have been molded, while softened by heat, to the exact contour of the surface to be grafted. They have, however, the disadvantage of non-elasticity.

During the last six months I have endeavored to solve the problem by the employment of rubber bath-sponges of appropriate sizes—made of porous rubber and sold everywhere at moderate cost. These sponges have a number of advantages: they are permanently elastic and exert a constant, but not excessive, pressure, which may be regulated by appropriate bandaging. They can be adjusted easily in almost any situation, and can be sterilized in an antiseptic solution (not by boiling), thus permitting their repeated use. They also encourage the saving of gauze and cotton, and in many instances render drainage unnecessary. They likewise may be used to control and encourage the closure of fecal, urinary and biliary fistulae, to promote collapse of the chest wall in thoracoplasty, and for compression of the flaps in amputation-stumps.

A few illustrations of the use of the method may contribute to clearness:

In operations for cancer of the breast (Fig. 1) two large sponges are used (five by six inches), one just below the clavicle and

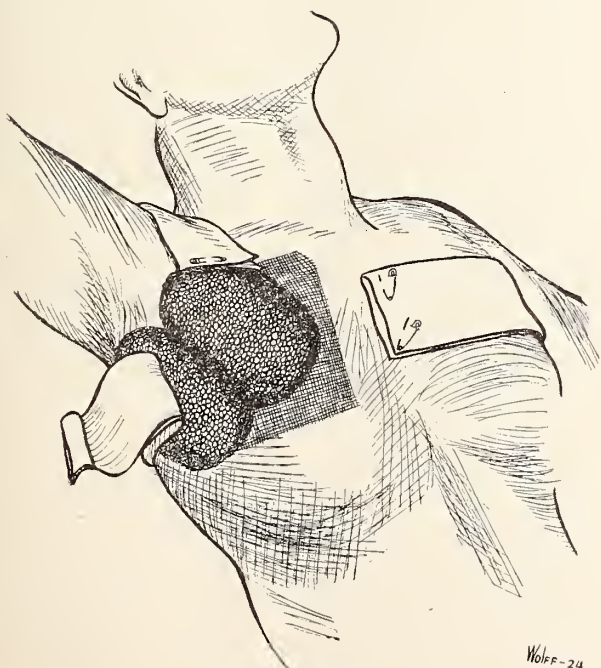


FIGURE 1.

with appropriate shoulder-straps to hold it in place.

In goitre operations (Fig. 2) two smaller one in the axilla, applied over a moderate-sized dressing of gauze and cotton and held in place by a "roly-poly" gauze bandage or a towel pinned tightly around the chest,

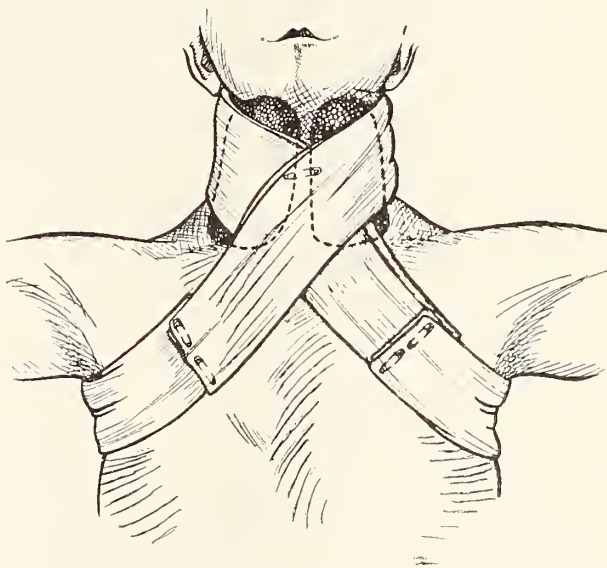


FIGURE 2.

sponges (five inches by three and one-half inches) are placed, over a dressing, one on either side of the neck immediately above the clavicles and secured by "roly-poly" bandage or, as practiced by my associate, Dr. G. E. Cheley, by towels applied as in the illustration. The elastic pressure thus obtained is so effective that drainage can generally be eliminated without danger of the accumulation of fluids in dead spaces.

In fecal-urinary or bile-fistulae (Fig. 3) a smaller sponge is folded once upon itself to increase its elasticity, enveloped in a sheet of rubber dam, to prevent saturation with excretions, and applied directly to the opening, without the intervention of gauze or cotton. If held securely in place by a belt, or by other convenient means, perhaps with the addition of a perineal band, the discharge from the fistula can be controlled with an effectiveness and simplicity which is a source of great satisfaction, especially following colostomies and prostatectomies. It also should be noted that the procedure materially hastens the closing of fistulae, when closure is possible.

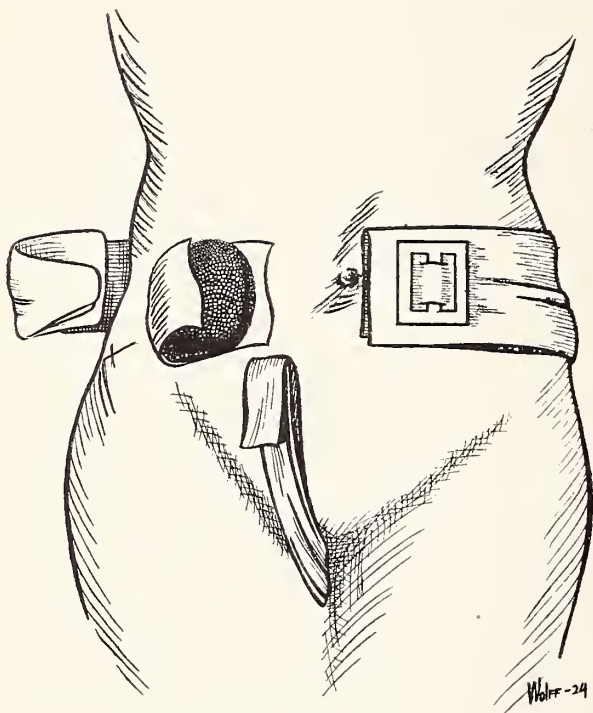


FIGURE III.

DISCUSSION

F. C. Buchtel, Denver: If the ghost of John Hilton were present today, he would probably say, "You recall that in my lectures in 1860 and '61 and '62, before the Royal College of Surgeons, I called your attention to the very great value of pressure in the closing of various fistulae and wounds. You will recall that in one of the lectures given in 1861 I related the histories of two cases of wounds of the head, with suppuration under the occipito-frontalis muscle. In my reports I showed an illustration which detailed very well the dropping down of the whole scalp almost to the ears. This man had had a suppuration for a year. Being carefully bandaged, this wound closed in a fortnight. The second wound of the scalp which I showed had a similar result. Another wound which I called your attention to was a suppuration of the sole of the foot which had been going on for four years. By the careful application of lint and proper bandaging, giving absolutely physiologic rest and drainage, this case was healed in four days. I called your attention to the fact that this seemed absolutely an incredible statement, and yet the fact remains. In two of the lectures which I gave in 1862 we had two men with suppurations in the groin. Both of these were from a non-syphilitic inflammation of the prepuce. In one of these there were five fistulae. In the other case there was a long sinus with an abscess at the end of the fistulous tract. The first case had seen many surgeons and had been advised to have the whole tract laid wide open. I felt this was not necessary. I gave both cases a simple truss, and I adjusted it so that a key could be made to push on the large end of the truss so as to make pressure continued day and night. The first case was healed in a fortnight, and the second case in six weeks." A very good paper was read at the last meeting of the American Surgical Association by Dr. Blair on the whole skin transplant, in which he called very marked attention to the value of sponge compression. As Dr. Freeman says: this is not a new principle. It is very old. The use

of bath sponges, both rubber and sea, has been stressed by Dr. Kanavel and also by Dr. Blair in skin grafting cases. The general applicability of the rubber bath sponge in general surgery has not been emphasized and Dr. Freeman deserves great credit for bringing it to our attention as a feasible means of exerting elastic compressing to obliterate dead spaces and thus facilitate healing by first intention.

T. A. Stoddard, Pueblo: The principle of obliterating dead spaces is good, but from the talk here today we would suppose we were back in 1886, talking about antiseptic solutions. I thought the day of antiseptic solution had passed. It ought to have passed long ago. I believe if the days of antiseptic solutions had passed, particularly in this country, President Coolidge's son would still be alive. I have no patience at all with men talking about antiseptic solutions in this day of clean surgery. There is no doubt about the fact of dead spaces, that they should be obliterated. They can be obliterated without the aid of any antiseptic solution in the preparation of the methods that are being used or may be used for the obliteration of these dead spaces. It is along the same line that we use rubber drainage tubes on many occasions. It is a crime against surgery, and some of us ought to take note of it.

LIFE SAVING BY THE PRONE PRESSURE METHOD

The science of restoring apparently drowned persons is not new. In 1773 there were authentic instances of apparently drowned persons being restored to consciousness. However, these earlier methods of resuscitation were crude and uncertain although they saved many lives. Sir Edward Albert Schafer, an English physician, whose contributions to the science of life saving were recognized by the Royal Life Saving Society which awarded him the distinguished service medal in 1909, founded the Schafer Prone Pressure Method of Resuscitation which is now recognized as the best method of artificial respiration.

Originally intended to restore persons apparently drowned, the prone pressure method has found an equally great field of usefulness in restoring persons rendered unconscious by electrical shock, gas asphyxiation or any accident which causes a cessation of breathing. Public utilities everywhere are teaching this method to their employees and on numerous occasions this knowledge has enabled them to save the lives of fellow employees and others. These companies and the National Safety Council, the American Red Cross and other organizations are using all the mediums at their disposal to spread the knowledge of the prone pressure method among the general public. Municipal authorities are also learning the value of the prone pressure method and police departments and fire departments in many cities are being instructed in its application.—National Safety Council.

NATURE'S SECRETS

Nature is nowhere accustomed more openly to display her secret mysteries than in cases where she shows traces of her workings apart from the beaten path; nor is there any better way to advance the proper practice of medicine than to give our minds to the discovery of the usual law of nature, by the careful investigation of cases of rarer forms of disease.—William Harvey.

RESPONSIBILITY OF THE UNIVERSITY SCHOOL OF NURSING*

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The first step toward university affiliation of schools for nurses was taken when Mrs. Isabel Hampton Robb, Miss Banfield, Miss Palmer and their associates on the committee appointed by the National League of Nursing Education, went to Columbia University Teacher's College some twenty years ago and made arrangements for the admission of graduate nurses as students in Hospital Economics.

The university group was at that time a little doubtful of the intellectual capacity and the scholarly attainments of the nurses; and this attitude is not entirely passed, yet there are nearly twenty universities at present offering courses for undergraduate student nurses, and about as many giving the use of their laboratories and class rooms for post graduate work. One of the latest affiliations and one which will be watched with much interest because of the original educational work done by the college and the excellent standing of the school, is that between the Miami Valley Hospital School of Nursing and Antioch College.

Minnesota University made the first systematic effort to incorporate the school of nursing into the structure of the university, and their central school using four different hospitals as their fields for experience is a well established educational fact.

When we look back over the half century since the first schools were opened in this country as Training Schools for Nurses, we see a growth and development that shows an alteration in the whole outlook on the problem of teaching women to care for the sick.

It was a very real need of intelligent conscientious care for the city's poor that moved the visitors to organize the Bellevue School, but their thought was of the manual skill required for caring for their patients. But somewhere in those overcrowded wards there came to Isabel Hampton and her associates the vision that the skill of hand

was only a beginning of the fulfillment of the possibilities of nursing; and she went on to organize schools in Chicago and Baltimore, where there was intellectual stimulus to study health and disease and an effort to coordinate the whole personality of the student nurse in professional service. Jane Delano also saw in those early days the opportunities for helping the sick, which lay before women who had learned to stand by humanity during its hours of stress and strain, when the new life comes into being through agonizing effort, or when the hold on the familiar things of life is loosened and a human being faces dissolution, or when steadiness and courage in his nurse could carry a patient through soul wracking suffering, and bring him back to health. Any work based on such fundamental needs of humanity must needs discover ways and means to meet those needs, and the human power to pass along information and the results of experience has led naturally to increasing the educational opportunities offered to young women who wish to do nursing. If we can teach the students of the present day to use their chance for study and experience as well as did our pioneer women of fifty years ago, their accomplishment of service to humanity will be greater than we can foresee, and the rewards will be commensurate.

What the content should be of the course offered to a student coming to a University School is still a matter for much discussion and experiment. There is no doubt it should be rich in opportunities for scientific study of the sciences on which intelligent nursing is based, and they should be taught not simply as facts to be remembered but as new points of view offering a chance to get into co-operative contact with the great laws of nature. The woman who is to serve as interpreter of the results of research to the people must needs understand something of the means by which these results are obtained.

It is really very creditable that the product of our schools has been able to render

*Read at the annual meeting of the State League of Nursing Education, Feb. 12, 1925.

such service in the world that there is a great demand for nurses in a variety of occupations that were never before considered as being a part of a nurse's responsibility. The demand for good nurses and educated nurses is a very real one, and it is hoped that the numerous university affiliations will be able to answer that need. The general advantage of university work with its broadening of the student's outlook and the appreciation of the point of view of those who are concerned in different occupations is certainly a large advantage of the university affiliation. We can hardly hope that all our university school graduates will do more for their patients than has been done by some women of less extensive education, for their service has had the wonderful pearl of devotion and sacrifice which can not be replaced by any academic work. But if we can keep the earnestness and eager desire for service which have been characteristic of our best nurses, and add to that the culture for which the University stands, the woman who holds our diploma will be in a position to enjoy her work and put into it more wisdom and strength than is possible under other circumstances. The tremendous growth of the public health nursing responsibilities in the last few years opens many avenues of usefulness to the educated woman, and anyone who has undertaken to harmonize the various elements entering into the work of an industrial nurse or one who is responsible for the health of school children, has no question of the value to her of a university education. The woman who undertakes to teach student nurses or to organize the course in a great hospital, with the need for co-ordination of practical and theoretical work, certainly can not have too much appreciation of the educational point of view, or too much knowledge of the best that pedagogy has to offer in these years.

As long as society is organized as at present, and there are people who have the tremendous responsibility of vast wealth with all the encumbrances and obligations which that brings into human life, there will be many men and women of this class who need a nurse with remarkable balance and poise,

who can stand behind them during their periods of illness and help them to a wise return to health. The woman of narrow vision who sees only the luxury and elaborate life of the very rich without realizing its obligations for noblesse oblige, can not be expected to give the highest possible service to this class of patients, and we hope to see women of fine character always ready to do private duty nursing. There are many other patients of refinement and great mental energy who need very intelligent understanding of their condition, and the best that can be brought by a highly educated woman is none too much.

Carlyle says that all that the greatest university can do for a man is what the first school began to do, teach him to read, and if our university can graduate women who have been taught to read their patients' symptoms in relation to the life and labor of their time, we shall have made the best contribution we can to serve and to relieve suffering humanity.

LIFE? A QUESTION

Life? and worth living?
 Yes, with each part of us—
 Hurt of us, help of us, hope of us, heart of us,
 Life is worth living.
 Ah! with the whole of us,
 Will of us, brain of us, senses and soul of us.

Is life worth living?
 Aye, with the best of us,
 Heights of us, depths of us,—
 Life is the test of us.
 —Corrinne Roosevelt Robinson.

THINGS OF CLAY

Sing a little, play a little,
 Laugh a little; for
 Life is so extremely brittle,
 Who would think of more?

Every long-laid project shatters,
 Framed by things of clay:
 He who knows that nothing matters
 Smiles and slips away.

—G. Bradford.

COURAGE

Into a brown wood flew a brown bird
 In the winter time;
 The sky was dark with snow unfallen;
 The leaves were bent with rime.

Once north he flew, once south he flew,
 He perched on a naked tree,
 He looked into the dreary dusk
 And whistled merrily.

—William Alexander Perry.

MEDICAL FORGERIES*

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DENVER, COLORADO

It is fortunate for society that most of us are not familiar with the many disheartening pages of criminology, because we experience sufficient disappointments early in life to shake the most optimistic faith in human nature; but there are certain phases of moral perversion of which but little is known to the expert criminologist, much less to the general masses. Untrodden ground is always interesting, and especially so if publicity of the unknown discovered there can benefit mankind.

The study of the many medical forgeries and frauds that are perpetrated on the unsuspecting public throughout the world, but more especially in this country, where our laws regulating the practice of medicine are so ineffective, offers a field for investigation replete with examples of moral turpitude comparatively unknown to the medical profession and of which the general public has no conception. If such were not true, public opinion relative to the suppression of charlatanry would not be what it is today. When a traveler is relieved of his purse by the highwayman, the people are up in arms and ready to mete out the death punishment without aid of court or jury. How different is the situation when those entrusted with the administration of our medical laws try to punish these robbers of the credulous sick?

The public is prone to assume, without investigation, that the medical boards are prompted by professional spite and jealousy in such prosecutions; and without the support of public sentiment the best law is seldom operative. It seems incredible that any one could be so thoughtless in the exercise of Nature's first law, self-preservation, not to use every effort possible to prevent the criminally inclined from entering a field where, when legally installed, they have the opportunity to deceive and prey on the ignorant and educated alike with but little fear of detection.

I have long entertained the opinion that if people had the faintest idea of the frauds being perpetrated by this class of criminals the existing public sentiment in relation to the enforcement of laws regulating the practice of medicine would be entirely changed. To this end a brief epitome of the following cases selected from those coming under my observation will, it is hoped, serve to illustrate the degeneracy of medical forgers, aid in bringing some of them to justice, and perhaps save a few unsuspecting mortals from their merciless clutches.

The Ryetzel Case

In the spring of 1902 a man claiming to be George A. Elliott, M. D., University of Toronto, 1896, presented to the Colorado Medical Board for registration a genuine diploma of that school. The diploma was not questioned as to genuineness, and the board, after requiring the customary affidavit and payment of fee, issued a temporary license. The authentication investigation of the applicant's credentials, while not conclusive, led us to believe that he was the person to whom the diploma had been originally issued, and at the following meeting of the board he was granted a permanent license. He immediately opened an establishment in Denver which purported to be a private surgical hospital for women. The advertisement in the daily papers, however, at once revealed its true character. The Colorado medical statute had no provision for the revocation of a license except on the ground of the conviction of the licensee of conduct of a criminal nature, so that our board was powerless to revoke his license. We still supposed he was a man of ability, but one who had fallen from ethical practice.

In a short time he made application to join the Colorado State Eclectic Medical Society, and the committee on admission inquired at the office of the Colorado State Medical Board as to his credentials, graduation, etc. The fact that the University of Toronto was not an eclectic school immediately suggested that this man could not be

*An address delivered at a public health meeting at the Morey Junior High School, Denver, December 1, 1924, under the auspices of the Denver County Medical Society.

the original Dr. Elliott. After a prolonged search the real Dr. Elliott was located in Leamington, Ontario. Before we could get out papers for the arrest of his impersonator the latter was jailed on the charge of criminal operation on the person of a Miss Sarah Vance, the unskilled technic of which caused her death. In his attempt to cover up this deed he frightened the girl's fiancée into suicide and tried to secure interment of the body by signing the burial certificate as one of death resulting from hemorrhage of the stomach due to gastric ulcer. He was allowed bail, which he promptly "jumped," and had it not been for the fact that the United States Postal authorities had a case against him for sending immoral literature through the mails, it is very probable he never would have been compelled to stand trial for this fiendish murder, which, according to one of his accomplices, was one of many.

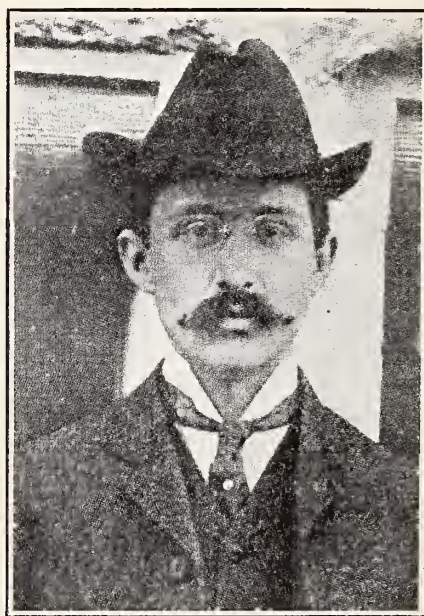
Investigation of this imposter's record revealed that his right name was Albert Edward Ryetzel, originally from Chicago; that he had served a sentence for larceny in the Illinois State Reformatory (Pontiac) as Charles Fox (No. 2865), from which institution he was paroled June 11, 1898, to D. K. Carter of Chicago. He reported once after being paroled, then ran away with \$40 and assumed the alias of Dr. Bennett.



A. Edward Ryetzel as Charles Fox, convict No. 2865, Illinois State Reformatory, Aug. 4, 1897.

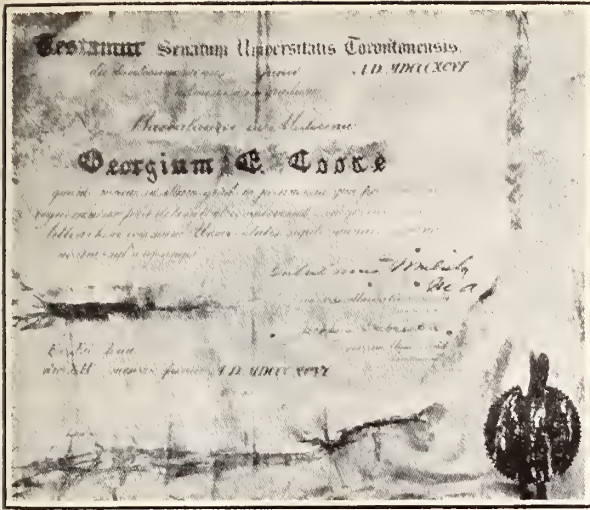
Under this alias his record is not very complete. In 1900 he appeared in Kansas City, Kan., as Dr. George A. Elliott, where he conducted a place similar to his Denver institution. While in Kansas City a Swiss

mid-wife, Adele Cornely-Cachoud, was supposed to be his wife. She came with him to Colorado, but his affections were soon transferred to one Mary Etta Inman. To get rid of the Cornely woman he induced her to send some immoral literature through the mails. As soon as she was arrested he arranged for her bond and then persuaded her to return to Switzerland. He was not shrewd enough in this scheme, as the federal authorities arrested him as her accessory.



A. Edward Ryetzel as Dr. George A. Elliott, when arrested for the murder of Sarah Vance, Oct. 29, 1902.

After forfeiting bail in the Vance case he discovered that George E. Cooke, who was graduated from the University of Toronto in 1896, had qualified and located in Chicago, and later, like George A. Elliott, had returned to Canada. Ryetzel then erased the name of Elliott from the University of Toronto diploma in his possession and substituted that of Cooke, assumed his fourth known alias, and commenced practicing in Chicago under the name of George E. Cooke, who the records in Springfield showed had been duly licensed. The postal authorities were too keen, however, and he was soon caught and turned over to the criminal court in Denver to stand trial for the criminal operation and murder in the Sarah Vance case. He was tried and convicted on the first charge, fined \$1,000 and



Altered diploma of George A. Elliott. Identification is unquestionable, as it bears the Colorado Registration Board's inspection mark on its reverse side. This document was hanging in Ryetzel's office when arrested in Chicago by the federal authorities.

sentenced to the penitentiary for three years at hard labor. After serving this sentence he was convicted in the Federal court on the charge of improper use of the mails and

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I hereby voluntarily of my, dated 11. 1903
even go will and accord waived this not
and under all rights & privileges, youth
thereunder the sure having been
wrongfully & fraudulently obtained
by me
Mary Etta Inman

W. H. Inman
J. H. Inman
C. H. Inman

Reproduction from the records of the Colorado Board of Medical Examiners, book B, page 222, showing the cancellation of the forged registration No. 3, 865, of Mary Etta Inman.

served several years in the Leavenworth, Kansas, prison.

As soon as the Cornely woman returned to Switzerland he married Mary Etta Inman. Elliott induced Miss Inman to make false representations to the Colorado License Board and to secure thereon a fraudulent certificate (No. 3865), which she was compelled to cancel, as will be shown in the reproduction of such cancellation. While in Chicago under the alias of Cooke he made application to the Oklahoma State Medical Board and had the undaunted nerve to use the name of so prominent a surgeon as John B. Murphy as one of his sponsors. It does not require the aid of an expert to see that

Forged application affidavit used by Ryetzel under the alias of Cooke to secure a license in Oklahoma. The signature of John B. Murphy is in the handwriting of Mariette Inman, Ryetzel's last wife.

the signature purporting to be Dr. Murphy's is in the same handwriting as the cancellation of Mary Etta Inman's registration.

The exceptionally good imitation of George A. Elliott's signature Ryetzel suc-

ceeded in making is conclusive that he had in some manner secured a sample of the latter's handwriting as a copy. How he obtained the Elliott diploma is as yet unsolved, but if the story of Mary Etta Inman is to be believed, certain individuals holding positions of honor in their respective communities should feel a sharp prick of conscience when they read her statement.

Ryetzal's demeanor as a criminal before the bar of justice was one of coolness personified. Thief, forger, murderer and bigamist, fiend incarnate as he was, he is different from the ordinary criminal. Unquestionably he is a degenerate, a man who is most dangerous to himself and society, one who, if there is not sufficient evidence to cause his execution, should certainly be kept under restraint. His scrapbook, filled with clippings of his own and similar advertisements, is a rare collection, notwithstanding its worthlessness save to those engaged in the same unlawful occupation, as a book of reference for style and diction.

This resume of Ryetzal's known record is not complete, but it is sufficient at least to give a fair idea of the depravity of a man who, that he might satisfy his base desires, stopped at nothing and lived principally by the murder of innocents. With all his hardened conscience, the ordinary murderer would shrink from such deeds and blush for shame.

The Warren Case

Unquestionably this case is one of the unique examples of medical forgery, or to be specific, graduation by proxy, on record. The star of this little drama was Dr. (?) Augusta H. Warren of Chicago. Owing to the defective medical statute he could not be disturbed so long as he remained in that state, nor could the Illinois State Board of Health revoke his medical license, known to have been fraudulently obtained, under the construction of the law. He originally hailed from Indiana, Pa., where he was accused of arson to secure insurance money. From Pennsylvania he drifted west in the early eighties, and for several years was "barker" for a traveling medical faker. The opportunities this position offered for observation of the gullibility of the public in

matters medical no doubt convinced him that a better field did not exist wherein he could obtain money under false pretenses than that of quackery. To succeed, however, he must possess a medical diploma, and the story of how he obtained it reveals a talent for scheming worthy of use in a better cause.

The records of the Omaha Medical College show that in the spring of 1885 one Sidney H. Knowles was graduated from that institution. In the fall of that year he appeared in New York City under the alias of A. H. Warren, where he matriculated in the graduating class of the medical department of the University of New York as a graduate of the Omaha Medical College, 1885. At the time of this matriculation he gave his age as twenty-six which, compares with that given when he entered the Omaha Medical College in 1884. Inasmuch as the records of the Omaha Medical College show that no one by the name of Warren ever matriculated in that institution, it is conclusive that Dr. Knowles must have used his notice of graduation, or some similar credential, changed to the name of Warren, when he matriculated in the University of New York. He was graduated from that university in the spring of 1886 and turned his diploma over to Warren. We were informed that Warren stood the expenses of Knowles while in New York and gave him \$1,000 for the diploma. Rather a profitable winter's work, when a postgraduate course at one of the best medical colleges in the country is considered. Knowles went and practiced on his Omaha diploma. When last heard of he was in Bremerton, Washington, but like the history of all evil-doers, his life has been full of thorns. Verily, verily, "the way of the transgressor is hard!"

Warren succeeded in gaining legal standing as a physician in six states on the diploma issued by the University of New York to Knowles as A. H. Warren. Since passing out of my hands, however, it is not likely this diploma will be presented to another license board, inasmuch as the red-ink inscription on the face thereof would be decidedly detrimental to the chances of the applicant presenting it.

Warren used every scheme known to the charlatan in fleecing his victims, but his special method was to have an advance agent proclaim his coming as a renowned physician particularly skilled in the cure of cripples and incurables. He advertised not only "no cure, no pay," but declined to take any money until the cure was satisfactory to patient or guardian. By this means he could secure the promise of a larger fee, and in making his contracts he used an ingeniously devised agreement drawn so as to read that it became null and void if for any reason the signer was dissatisfied with the results in the case under treatment. A part of the contract was so cleverly arranged that it could be torn from the rest and leave a straight negotiable note. After securing as many such notes as he could in a community he would take them to a bank and dispose of them by allowing a liberal discount. So clever a man is he that in one rich farming district alone, in only two weeks, he departed to pastures new with \$2,400. It is needless to say he never returned or sent further recommendation as to administration of medicines he left, which on analysis proved to be principally common salt and water, with a little inert coloring matter.

The Hagen Burger Case

Degeneracy with criminal inclination is dangerous enough when co-existent with the manners and facial expressions of a criminal, but when discovered in people of genteel appearance, pleasing address and good physiognomy it becomes a much greater danger to society. Such characters are occasionally seen in all classes of criminals but nowhere in the annals of medical forgery can there be found a better example than in the person of a man who claims the name and titles of Dr. Med. Gottfried Leonard Hagen Burger, M.S., Ph.D., F.R.C.P. (King). After leaving Colorado he practiced under these numerous titles at 867 Beacon street, Boston, Mass. When last heard of he was plying his trade in Florida. How he fooled the licensing board of that state I do not know.

This wonderful medical savant's history, so far as can be determined, does not, like most noted men, commence with the date

and place of birth, parentage, etc., because it is impossible to trace it further back than the early eighties, when he was graduated from the American College of Veterinary Medicine of Brooklyn. After graduation he opened in that city a veterinary hospital, which he subsequently sold. He then took up the study of law, but soon chose medicine as the profession he would assume, and after a few months spent in visiting European clinics, we find him in Helena, Mont., claiming to be an M.D. from the University of Kiel, Germany. His career in Montana was of short duration, notwithstanding it was full of tragic and dramatic experiences. How he passed the examination and secured a license to practice in that state is difficult to understand when certain facts relative to his forged credentials and lack of educational and moral qualifications are considered. By whatever manner or means it was accomplished the incident serves as an object lesson which proves that the mere possession of a diploma, without proper authentication and careful scrutiny, as a prerequisite to admission to state examination is not all that advocates of such a statutory provision claim.

His career in Montana as a self-styled specialist in abdominal surgery came to a climax when he performed his first eeliotomy on Mrs. A. J. Schumacher, the wife of a prominent mining engineer of Butte. She promptly died and her husband came near bringing Herr Hagen Burger's earthly career to a sudden and tragic end. It was not so ordered, however, and with aching bones and bandaged wounds he left the state between suns, and a few months later he made his debut in Colorado.

His failure as an abdominal surgeon had veered him to another line of practice. At that time he was overflowing with personal proclamation of his skill and experience as a medical practitioner, disclaiming any predilection for the surgical side of the profession. His special hobby was a great invention of a room in which the atmospheric pressure could be controlled. By such a contrivance he proposed to procure for pneumonia patients in high altitudes an environment exactly the same as produced by the

natural barometric conditions at sea level. He lost no time in calling on the secretary of the State Medical Board, ostensibly to inquire of the requirements for licensure, but in reality, like the ordinary bunco man, to size up the secretary, because, as was afterward discovered, he was thoroughly informed as to the provisions of the Colorado law. He claimed to be a graduate of Kiel and Wurzburg, but stated that as there was some uncertainty about his locating in Colorado, he would not make application for license; that he was on his way to New York to see about the manufacture of his pneumonia room, and should he decide to return to Denver he would then file his application and credentials.

It must be confessed that in spite of my self-esteem as a reader of human nature, this man, with his suave manner and general appearance, deceived me completely. I put him down as one of those pseudo-scientific cranks who think they are going to revolutionize the accepted theory and principles of practice. On his return he took particular care not to come near the office of the medical board, although he had the audacity to open an office in the leading hotel in Denver and send out a card to the medical profession (excepting members of the medical board) announcing himself to be specially prepared to conduct all kinds of clinical examinations, and that he would limit his practice to the "diseases of the stomach, abdomen and chest." As evidence of his qualification he added the following:

Late Assistant with Chauta and Chrobak,
Vienna.

Late Assistant with Ewald, Boas and Baginsky, Berlin.

Late Assistant with Leopold, Dresden.

Late Assistant with Kehrner, Heidelberg.

Late Assistant with Koch, Senator and Rosin Charity Clinic, Berlin.

Late Assistant with Leube and Maetrstock,
Wurzburg.

Late Assistant with Fisher Col. Uni., New York City, C.P. and S.

Late Assistant with Cabot and Hewes,
Harvard Laboratory, Boston.

The idea of being "Late Assistant with" eight prominent medical men from Berlin to

New York is too inconsistent to need comment. The board's first knowledge that he was practicing in Colorado came in the form of an inquiry from the city health officer asking if he was a licentiate in medicine in Colorado. He had been arrested for reporting a case of smallpox as typhoid fever. As he had not even filed an application for a license we notified him that unless he immediately complied with the medical practice act he would have to answer a charge of practicing medicine without a license. His application was forthcoming, in which he made a sworn statement to the effect that he was a medical graduate of the University of Kiel, 1896, and an M.D., Ph.D., Wurzburg, 1897. In support of his affidavit he presented two documents, one from Wurzburg, purporting to grant the combined degree of doctor of medicine and surgery and doctor of philosophy; the other from Kiel, conferring the degree of doctor of medicine and surgery. As our statute allowed no recognition for a diploma conferring the combined degrees of Ph.D. and M. D., the Wurzburg diploma was returned to him, but we kept the Kiel document.

Owing to the general appearance of his credentials, which were poorly printed on inferior paper, our suspicions were aroused and special investigation made of his credentials. Through the kind assistance of Professor Helferich, dean of the medical department of the University of Kiel, Paul Gaston, United States consular agent of Kiel, and Professor Baumann, of the University of Wurzburg, we were able to establish the fact that both documents presented by this imposter were forgeries. The Colorado board naturally refused to grant him a license on such credentials and had him arraigned in the criminal court for offering false and forged evidence in applying for registration.

In addition to his general suavity, augmented by an unfailing nerve, Hagen Burger possessed an exceptional gift of enlisting the aid and sympathy of the gentler sex. This accomplishment he used to advantage in securing bail. It enabled him to deceive the wife of one of the most prominent and honored members of the Colorado bar. This gentleman was induced to go on Hagen Bur-



Reproduction of forged Kiel diploma by G. L. Hagen Burger. Comparison shows it to be an exact duplicate of Dr. Otto Tretow's as to date and title of thesis, but the paper, type, printing, seal and signatures are entirely different. The signature of Professor Seelig, the rector, appears with that of Professor Werth, in German script and in the same handwriting, while it is customary for only the dean to sign medical diplomas and then always in Latin script.

ger's bond temporarily, but his liability proved to be permanent. The state was confronted with the difficulty of securing a witness competent to identify the genuine signature of Professor Werth, and Hagen Burger became confident he would be acquitted by our failure to get such witnesses. The law's delay was irksome and his opportunity to gull the Denver public was suspended by the pending charge.

On July 1, 1902, he made the bold move of appearing before the board for examination to show educational qualification entitling him to a license. Under our statute we could not, even had we desired, refuse to examine him, notwithstanding the abundant documentary evidence in our possession of his bad moral character. In filling out the customary examination blank he carefully avoided mentioning having studied at Wurzburg and Kiel, but claimed to have attended lectures at Heidelberg, Vienna, Dresden, Harvard University, New York Post-

Graduate and New York Polyclinic. No record in any of these cities or any of these institutions can be found where he regularly matriculated, although he attended the clinics in some of these cities, which, without preparation, did him about as much good in an educational way as the country bumpkin who went through college by walking in at the front door and out the same morning. He was carefully watched during his examination and his papers liberally graded to prevent accusation of bias on the part of the board. His knowledge on the subjects of examination, however, as evidenced by his vague and indefinite answers, was so superficial and wanting in essentials that we were compelled to refuse to grant him a license. His answers to ten practical questions in anatomy showed an absolute ignorance of the subject. In his "stabbing" attempts to name the muscles attached to the greater trochanter of the femur he only succeeded in mentioning two, and those by the name used in comparative anatomy, which he evidently recalled from his veterinary course of instruction. When notified of his failure to pass the required examination he forthwith began mandamus proceedings in the district court to force us to grant him a license on the grounds that the board was guilty of prejudice and partiality. The real motive in taking the examination and in instituting the mandamus suit was soon made clear by a proposition from his attorney to drop the suit, providing the court would nolle the criminal complaint.

Meeting the deserved disappointment in this move, and in realizing that the board had been successful in securing three graduates of Kiel as competent witnesses to testify to Professor Werth's signature, Hagen Burger informed his bondsmen that he had come to the conclusion that what he had believed to have been genuine examinations by the Kiel and Wurzburg authorities were probably fraudulent schemes imposed on him by a band of counterfeiters to secure the examination fees; further, that if he could be allowed to go to Germany he could establish the fact that he had been so victimized. How such a flimsy transparency could have gained credence in the mind of so able

a jurist as his bondsman is beyond understanding. Nevertheless he allowed this scamp to start on his journey, ostensibly to Kiel. He failed to get further than the Atlantic coast and soon the report came back that he was under the care of several of Gotham's most eminent neurologists for an attack of nervous prostration of such gravity that it was probable death would take his case from the jurisdiction of the Colorado courts. The Grim Reaper was not so merciful, however, and we next hear of this impious wretch in Boston, at which time, judging from the character of the following advertisement from the Boston Medical and Surgical Journal, he had completely recovered from his attack of nervous prostration:

**PRIVATE COURSE ON PHYSICAL
AND CLINICAL DIAGNOSIS.** Class

limited to eight members. Six weeks individual instruction. Abundant Dispensary material. Price \$20.

COURSE ON OPERATIVE GYNECOLOGY. Six on the cadaver. Price \$25.

Also preparations and quizzing for State Boards, Army, Navy, and Hospital examinations. Dr. Med., G. L. Hagen Burger, F.R.C.P. (King). 867 Beason St., Boston.

At least his old-time effrontery and desire for unearned professional titles had reasserted themselves. Investigation at once revealed why he had become so bold. He had, by some means, succeeded in passing the Massachusetts medical board as an undergraduate, and thereby gained a legal standing in that state, as he had in Montana as a graduate of Kiel. With any knowledge of his cunning and fearlessness it is easy to understand how he succeeded in deceiving the Massachusetts board, but, so far as can be learned, they have taken no steps to remedy the error they made by granting this arch-medical imposter a license to practice medicine in the state and city whose very name is synonymous with higher education.

Through some agency he has circulated in Denver the story that he was teaching medicine in one of Boston's best institutions, where his scholarly attainments are recognized, in contrast to the lack of appreciation exhibited by the profession in Colorado. In

view of the man's history we think this story pretty hard on Boston—at least Colorado can stand it.

Later it was discovered that he had been admitted to membership in the Massachusetts State Medical Society as a graduate of Queen's College, Kingston, Ontario, 1904. Investigation revealed that when he was reported to be under treatment in New York City for a shattered system he was attending lectures at Queen's College, where he had matriculated in the senior class as a graduate of a German university, probably Wurzburg. The dean of Queen's College states that he failed on his first examination, but passed on the second. Their senate later conducted an investigation of the case, in which those of their faculty in charge of matriculation and examination of candidates for graduation, were most ingloriously duped, and revoked the diploma granted Hagen Burger.

In studying Hagen Burger's character and deeds one can not help being impressed with his apparent total disregard for the consequence of his wrong-doings. This is so manifest that his sanity can well be questioned. There is so much method in his madness however, that he should be made to feel the heavy hand of the law. Owing to the expense of extradition, and a most apparent disinclination on the part of the state's attorney to push the Colorado case against this scoundrel, it has been impossible for our board to do anything more toward his prosecution. The mandamus case against the board was dismissed when he discovered it would not accomplish his purpose. When such a man can do what he has, in the way of deceiving medical boards and the public, can any one advocate the lack of necessity for the most stringent laws regulating the practice of medicine? Certainly not, and it behooves enforcement and betterment of such statutes.

The Cory Case

During the summer of 1900 a woman assuming the name of Dr. Emma W. Cory applied to the Colorado Medical Board for a license to practice medicine. As evidence of educational qualification she presented a certificate from the secretary of the medi-

cal department of the University of Michigan to the effect that one Emma W. Mooers had received the degree of doctor of medicine from that institution in 1884. She set forth in her application affidavit that her maiden name was Mooers; that she had married a man by the name of Cory, and that she had lost her diploma by fire. She was granted license (No. 3206) and began to practice under the name of Cory. Her subsequent actions, as is usually the case with this class of imposters, convinced the board that she was a fraud. However, suspicion without proof is worthless, and after considerable search for the original Dr. Mooers, we dropped the case. Not long afterward Dr. (?) Cory chanced to meet Dr. Laura L. Leibhardt, a classmate of Dr. Mooers, and in the course of conversation inadvertently made the statement that she was graduated from the University of Michigan in the class of 1884 and that her maiden name was Emma Mooers. Dr. Leibhardt recognized that she was an imposter and reported her to the board. To make a clear case it was necessary to find the real Dr. Mooers. We renewed our search and located her in Waverly, Mass., where she was pathologist to the McLean Hospital.

At the trial Dr. (?) Cory held fast to her claim that she was the Emma W. Mooers who was graduated from the University of Michigan in 1884. When questioned as to how it happened that she was not lame, whereas the Emma Mooers known to Dr. Leibhardt was, she admitted that she had been lame but claimed by a certain course of treatment to have been entirely cured. She was bound over to the district court, where she was convicted and sentenced to one year in state's prison. On account of her sex and her children the court allowed her to go on parole. Soon after the expiration of her sentence she embarked once as a would-be disciple of the healing art, but this time as an Eddyite.

At the trial in the district court Dr. Mooers appeared as a witness, although it necessitated a trip of 5,000 miles, made possible by the aid of the medical faculty of her alma mater. It did not take the court and jury long to decide between the real

and the impersonator—the one a lady of culture and refinement, the other a base degraded criminal. It was subsequently learned that Dr. (?) Cory had impersonated Dr. Mooers in several other states and had succeeded in eluding the officers, making good her escape each time when hard pressed. These successes explained her boldness when arrested in Colorado.

The lantern slides, which I now wish to exhibit, were all made from the original forged documents presented to the Colorado State Board of Medical Examiners. These mute, but unquestionable, witnesses in proof of my statements, and descriptions of these examples of depravity should be sufficient to convince the public of the necessity for laws guarding well the granting of the legal right to the practice of medicine. The public unfortunately persists in believing the propaganda of chalatanes—to the effect that all laws and measures advocated by the medical profession for the suppression of medical imposters and the raising of the standards of medical licensure, are unjust, and originate in the selfish and jealous hearts of their proponents—not for the protection of public health, but to give the regularly organized medical profession the exclusive trust-like privilege of practice. No one who has ever given the subject the least thought but must realize the utter ridiculousness of this idea. However, the idea exists and has prevented the enactment of sane and effective statutes regulating medical licensure. Permit me to impress upon you, as members of society, as citizens of this state, your duty to support those who are working for better laws to protect you and your children from these criminals; who under present conditions are allowed to rob the credulous and deal death to the public and disconsolate who, in their eager search for health, innocently fall victims to these conscienceless robbers and murderers, who hold themselves out to the public as morally and professionally qualified to attend afflicted humanity.

Statistics compiled by the U. S. Bureau of Public Roads show that 40 percent of automobile accidents on highways are due to reckless or careless driving.

CULTS*

CUTHBERT POWELL, M.D., F.A.C.S.
DENVER, COLORADO

Since earliest times man has sought relief from pain and cure of disease.

There are historical records of physicians and healers as well as descriptions of many diseases as far back as 3,000 years before Christ.

The art of healing therefore has been and is in universal request, but unfortunately the average man or woman is wholly incapable of distinguishing the skilled physician from the ignorant charlatan.

Tremendous progress has been made in all branches of science during the past hundred years. The advances in Medical Science during this time have more than kept pace with other branches.

The discovery and use of chloroform and ether have rendered painless the operation of surgery.

Pasteur's and Koch's discoveries in the field of bacteria and Lister's development of antiseptic surgery, have made our present day surgery possible.

Prior to 1892, out of every hundred children stricken with diphtheria, eighty died. Since the discovery of diphtheria antitoxin in 1892, and with its proper use, the mortality in diphtheria epidemics is now only five in every hundred.

Smallpox has been practically eradicated by vaccination.

Typhoid fever, which in the Spanish war killed more soldiers than all war wounds, was practically eliminated in the World War by the use of vaccine.

The Panama Canal, probably the greatest engineering feat in all history, would still be a dream, had not yellow fever first been conquered by the discovery and destruction of its transmitting agent.

And now diabetes is controlled by the use of insulin.

One might continue to enumerate the many medical accomplishments which by their proper application bring health and freedom from pain to mankind.

But enough has been said to give an insight into what the medical profession has done and is doing for the relief of human ills.

The science and art of healing the sick and preventing disease knows no "pathies" and recognizes no sect or cult.

The scientific practitioner of medicine acknowledges no one and only method of treatment, but seeks continually for improvement in remedial agents, in methods and in technique.

He is willing to use whatever agent or method is of proven benefit to mankind in the prevention and cure of disease.

He is not bound to any one theory.

But as man since earliest times has sought relief from bodily ills, so also have there arisen during all these times various healers, medical cults and sects which have flourished to a greater or less extent, and passed into oblivion.

All cults are originated or founded by some one individual.

Almost without exception, the founder of a medical cult is without any scientific training and frequently palpably ignorant of the structure and functions of the human body.

Without exception the founder of a cult ignores or condemns all the accumulated learning and experience of all the scientists and students who have gone before. In other words he throws into the discard all the accumulated knowledge of disease and supplants it with his own theory.

Without exception, the practitioners of all cults claim that their particular and peculiar method of treating disease is the only right and proper method.

Roughly, Medical Cults may be divided into three groups. First, drug healers, offshoots of the medical profession, who cure all disease by drugs or combinations of drugs, including water cures, mud cures, sun cures, electricity cures, etc. Second, those who cure all disease by the exercise of the mind over the body, including mesmerism, spiritualism, christian science, and

*An address delivered at a public health meeting at the Morey Junior High School, Denver, December 1, 1924, under the auspices of the Denver County Medical Society.

the like. And third, those who cure all diseases by mechanical means, including mechanotherapists, osteopaths, chiropractors, naporapaths, etc.

Now it is perfectly reasonable and admits of no argument, that if all diseases under all conditions can be cured by denying the existence of disease, then it is useless to fool with any other method.

And if all diseases can be cured by adjusting the spine, then the cult which cures by removing obstruction to the blood supply is in error. If diphtheria can be cured by repeating over and over some copyrighted stock phrase, then diphtheria antitoxin is useless. In other words, all the various methods of curing disease can not possibly be right. Somebody is wrong.

Time will not permit, nor is it necessary to enter into a discussion of ancient medical cults. We are more interested in those present day healers with whom we are more or less in contact, if not personally, at least through various advertising media.

In 1789 a German physician, becoming dissatisfied with the state of medical science as it then existed, promulgated a theory of "similars" or a theory that all disease should be treated by drugs which, if given to healthy individuals, produced symptoms similar to the disease under treatment, and homeopathy was born.

A few years later, in 1800, Hahnemann, (for it was he who originated homeopathy) advanced his theory, potentizing or diluting remedies. The greater the dilution, the more potent the remedy.

A remedy diluted a thousand times, that is containing one one-thousandth of its original mass and strength, was more potent than the original portion before dilution. And Hahnemann also stated that after long experience he "preferred giving only two shakes to medicinal liquids, whereas formerly he used to give ten."

Notwithstanding Hahnemann's theory that all diseases were derived from the itch, venereal disease, or fig wart disease, that symptoms rather than the causes of disease were treated, that the millionth dilution of a drug was more potent in the treatment of a disease than a definite palpable

amount of the same drug,—notwithstanding these and many more queer and fanciful theories, homeopathy made wonderful strides. Schools and hospitals were established where its peculiar theories were taught and practised.

Where do they stand today? The so-called Homeopathic Schools, few of which still survive, teach all branches of medical science. Their graduates practice scientific, rational methods in the treatment of human ills.

There are today no real homeopaths. The name is still retained by a few straggling followers, probably more for sentimental reasons than otherwise.

Homeopathy has had its rise and fall.

For many centuries past, individuals have been cured of complaints by faith healers.

These healers make no pretense of knowing anything of the human body either in health or disease. They know not how they cure or what they cure. History records them by the thousands.

From the time of Edward the Confessor to the days of Queen Anne, the monarchs of England "cured" by the exercise of the "king's touch," the laying of the hands on the afflicted.

Alexander Dowie, at the beginning of the twentieth century came forward as a healer and healed his thousands. Shortly after Dowie's death, there came into Denver one Francis Schlatter, who claimed to have spent forty days in fasting on the Mountain of the Holy Cross, and was ready to heal mankind. The crowds who flocked to this ignorant old shoemaker blocked traffic, and the police were necessary to keep the lines in order. He, like Dowie, worked marvelous "cures." In 1923, he died, having spent his powers and been forgotten.

It took a woman however, really to put mental healing on a firm footing. By linking a religious cult and a therapeutic doctrine together, Mrs. Mary Baker Glover Eddy, showed a most remarkable business foresight. Even the name chosen by her for this new healing method, is without parallel as a catch word—Christian Science—Christianity and Science. A new and

modern way of being a Christian—possibly—but only a pretense as a science.

This peculiar healing system first denies disease and sickness and then proceeds to heal the same.

It makes pain an unreality, and has healers who for a price will relieve pain.

Last year a hundred thousand people died of cancer, a like number are dying this year. This so-called disease may be an error of mortal mind, but it's a fearfully fatal error. Pernicious anemia, tuberculosis, Brights disease, valvular heart disease, syphilis, will never be cured by reading a book or repeating a lot of twaddle.

Changing your mind will not replace an amputated arm or leg, or regenerate an eye lost by accident or disease.

It is a significant fact that the death rate of those who deny disease and death, **is at least as high** as those who admit that disease is real. And furthermore, they are not considered as good life insurance risks as those who call a doctor when they have an error of mortal mind commonly known as physical illness.

I wonder if the followers of this religious-therapeutic cult honestly believe that God Almighty can be teased into abating all the ills of mankind, especially those due to vicious and unclean habits, or that He can be inveigled into partnership with those who are engaged in a profitable game of curing the sick.

Nor are the so called mechanical cures at all modern. From time to time a new "discoverer" exploits a real sure cure for all disease, by relieving pressure on nerves, blood vessels or ligaments. In 1874, Dr. A. T. Still of Kirksville, Mo., a man not particularly prominent in the field of Medical Science, "discovered" that all disease is due to structural mal-adjustments. And his treatments consisted solely of specific physical correction of such structural mal-adjustments or lesions.

This new therapeutic star in the healing firmament, was named "osteopathy". Its discoverer was doubtless honest in his beliefs. He was at the same time ignorant of the structure and functions of the human body. He lacked scientific training. Here

again we find an example of an individual theory contradicting sound principles.

What has this alleged science accomplished for the good of humanity? Has it produced during its fifty years of existence one man who has raised the standard of the healing art? Has it given birth to one practical idea for the prevention or cure of disease? No, but it has sought to overthrow, by its teachings of a theory, conceived and nourished in ignorance, the achievements of generations of scientific workers and thinkers.

Osteopathy today does not treat disease solely by specific physical correction of structural mal-adjustments. Within a few years it will have ceased to exist as a separate "science," and its followers, like those of Hahnemann will have entered the ranks of those devoted to the cure of disease by any legitimate means.

With the passing of osteopathy as a distinct therapeutic cult there has arisen another "adjustment fake," which can not be dignified by the name of a healing sect.

I would really prefer to ignore this new and blatant cult. But by reason of the arrogant position it has assumed and its noxious advertisements, tending to beguile the unsuspecting and gullible public. I may not pass it by unnoticed.

I refer to the organization known as chiropractic.

The chiropractic cult is in no sense of the word a healing cult.

It is a business organization.

How in the name of Heaven even semi-intelligent people can swallow the statement that all disease is due to pressure on the nerves leaving the spinal column, is beyond comprehension.

I have made the statement that I believe the founder of osteopathy to have been honest in his beliefs,—honest, but ignorant. I feel absolutely sure that the founder of chiropractic **was not honest** in his beliefs, that he organized his so-called healing system solely for pecuniary gains, and I believe I have sufficient evidence to support my belief.

The Palmer School of Chiropractic, the so called Fountain Head of the organization,

admits in its published statements that D. D. Palmer, the originator of the system, was an advertising magnetic healer. He was palpably uncultured and definitely unscientific, with no admitted educational basis upon which to treat disease, much less to found a system of healing, but with sufficient shrewdness to sense the financial possibilities of organizing a healing system and selling courses of instruction.

The Palmer School of Chiropractic advertised in May 1915, "to sell three year courses (of six months each), at \$250.00 until September first of that year." After September first, three year courses (of six months each), will be sold at \$300.00." They advertised to sell a course, mind you, not to educate along any scientific lines which might enable its graduates to prevent disease or to relieve the physically distressed.

A very small teaching faculty is required when courses are sold. At the time the above courses were advertised for sale the Palmer School literature also contained the statement that it had an annual enrollment of over 700 students and a faculty of 12 teachers, 12 teachers for 700 students annually, but as also advertised, a thorough business organization, employing thirty-five assistants. This is at least partial proof of the statement, that chiropractic is a business organization.

A letter from the National School of Chiropractic to a prospective student, begins as follows, "Dear Sir:—This letter will be a very short one. As it will be about money matters, it will be very interesting." Then follows a page of urgent solicitation to enroll as a student in a correspondence course, \$5.00 down and \$5.00 a month, average length of course being twelve months. And a postscript stating, "We show you how to get people into your office after your graduate."

A follow-up letter from the same institution, among other statements, has the following to say, "The National School of Chiropractic pays especially attention as to how a man is going to turn his professional knowledge into dollars and cents after he has gotten it." And further, "We want

to call your attention to the service department of our school, the advertising of which is conducted by specialists who know absolutely the needs of the individual Chiropractor."

Just a word concerning the educational requirements for entrance in chiropractic institutions. The Universal Chiropractic School of Davenport, Iowa, advertised that to obtain a diploma, students must have at least a common school education, but a prospective student giving his age as forty, occupation, clerk, country school education, stopping short of the eighth grade, received a letter acknowledging receipt of the information blank and the statement, "That from it we can see no reason why you should not make good as a chiropractor."

This college would give to an uneducated man after a two year residence course of six months each or twelve months continuous study a diploma carrying the degree of Doctor of Chiropractic. And if he attained an average of 95 per cent in his studies, upon payment of an additional fee, he would also have the degree of Bachelor of Science conferred upon him.

Why work for degrees when they may be so easily purchased?

Before leaving the subject, I cannot refrain from quoting a paragraph from a publication issued by the National School of Chiropractic; "What's the use of one's working himself gray-headed and losing perhaps the best years of his life, in the attempt to push up stream, carrying a burden which apparently never diminishes—when it is comparatively easy to take up a profession having all the elements of success in its favor, where the percentage of profit is considerably greater than in the average legitimate business, etc., etc."

Proof enough, I take it, that chiropractic is a business, a business which preys on the hopes and fears of those distressed in mind and body.

The practitioners of all so-called healing cults are either ignorant enthusiasts or fraudulent imposters.

One may be absolutely honest in his belief that a cross eyed man isn't really cross eyed. Or if one sees a breast cancer slow-

ly sapping away the life of a loved one, and honestly believes that the foul smelling nasty sore is in his mind only, then there is something queer in that individual's mental condition.

He is an ignorant enthusiast.

But if a healer admits that a cross eyed man is really cross eyed or that the cancer of the breast is a visible reality, then his faith in the non-existence of disease is not secure. And his attempt to heal the condition by changing the mental attitude of the sufferer stamps him as a fraudulent imposter.

Further, if through lack of knowledge due to improper or false teaching, one honestly believes that the above condition can be relieved by manual adjustments, either of the spine or other portions of the bony framework, the healer is an ignorant enthusiast. But if this healer is familiar with the human anatomy, if he is cognizant of the structure and functions of the human body, and then claims to cure such conditions, he is a fraudulent imposter.

Both the ignorant enthusiast and the fraudulent imposter are a menace to the health of the community.

What is the remedy? First, education of the public. It is far more important that a high school student be taught the structure and function of the human body—his own personal body—than that he be required to pass an examination on the boundaries of Turkey and that country's principal industries.

Second, a law compelling all those who pretend to treat disease or cure human ills, to conform to a definite standard of education.

In order to treat disease or heal the sick, one must demonstrate that such disease or illness exists. To treat disease without knowing its nature, is an unscientific and dangerous procedure.

One must therefore, irrespective of the methods of treatment employed, be able to diagnose between the normal and the abnormal, and differentiate the many and varied abnormal and diseased conditions to which the human flesh is heir.

There should be one standard set for all

practitioners of medicine or of the healing art, regardless of their methods of treatment, and this standard should be sufficiently high to guarantee that the practitioner is able properly to diagnose disease.

MEDICAL FRAUDS*

J. N. HALL, M.D., DENVER, COLORADO

Dr. J. N. Hall spoke upon Medical Frauds. He mentioned a certain famous bitters made of sour wine, fortified with alcohol, and containing as a bitter, aloes—useful because of its laxative action. The cost of this patent medicine was about five cents per gallon, outside of the alcohol, and it retailed at an enormous profit. It was fraudulent, because its advertisement led readers to believe it was a good tonic, whereas it was a disguised alcoholic stimulant.

Sage tea, of different colors for different diseases, was sold by a much advertised Chinese doctor. The two gamblers who were at the head of this defunct fraudulent business employed a renegade physician to help the ignorant Chinese coolie impose upon his dupes. He landed in the United States penitentiary for fraudulently using the United States mail.

The Abrams method of diagnosis and treatment of disease has been thoroughly aired in the Journal of the American Medical Association, the Scientific American and other journals. The diagnostic instruments used have been dissected by engineers who found that the reason no current could be made to pass through them was that they were not "connected up" throughout.

Many similar fraudulent methods of diagnosis and treatment of disease were discussed, such for example as the use of pastes to cure cancer without a proper diagnosis of cancer, and various oils for gallstones, causing the excretion of masses of bile soap, shown to the patient as actual calculi.

The Hippocratic definition of a physician still holds good, namely, "An honest man skilled in medicine."

*A brief abstract of an address made at a public health meeting at the Morey Junior High School, Denver, December 1, 1924, under the auspices of the Denver County Medical Society.

HOW ORAL SEPSIS BECOMES A FACTOR IN SYSTEMIC DISEASE*

JOHN W. SEYBOLD, M.D., D.D.S.
DENVER, COLORADO

We know that all tissues of the body receive their nourishment through the blood and lymphatic systems, and that the blood makes a complete circuit of the system, in approximately fifty-six seconds.

We also know that the lymph originates from the blood stream, and is later thrown back into it. This being a fact, you can readily see that any micro-organism entering either the blood or lymph streams, is liable to be transmitted to distant portions of the body.

From two hours after birth until death, each and everyone's mouth contains a great variety of bacteria, some of them harmless. There are four varieties that we are especially interested in that are disease-producing. In the order of their importance, they are: First, streptococcus veridans; second, pneumococcus; third, various members of the staphylococcus group—*albus*, *aureus*, *citreus*; fourth, fusiform bacillus.

The streptococcus forms 50 per cent of the bulk of micro-organisms contained in the mouth.

The mouth has a wonderful blood and lymph supply, and a specially active cellular epithelium, which takes care of tissue trauma, incident to the mastication of food.

In blood, we have two varieties of corpuscles, the red and the white. The red are oxygen carriers, the white are the soldiers of the blood stream, which destroy micro-organisms gaining access to the circulation.

If bacteria enter the lymph spaces, they are carried along in the stream until they come to one of the numerous glands, situated along its course, and as the lymph passes through the gland the bacteria are sifted out and destroyed by the gland.

In 1909, Sweitzer of Berlin demonstrated a direct connection between the pulps of teeth and the lymphatics of the neck. This was later verified by Dewey of Chicago. He

used a dye to inject the pulp which passed on into the gland (sub maxillary).

The reason that an individual maintains good health in the presence of these micro-organisms, is due, we believe, to what is known as a normal resistance.

Normal resistance is a proper balance between tissue waste and tissue repair. In order to maintain this balance it is necessary that one receives the proper food, rest and protection, according to his (climate) environment and work.

The tissues of the mouth become diseased due to irritation from such things as accumulations of tartar on the teeth, ill-fitting crowns, metal fillings impinging on the gingival membranes, lack of proper contact between the crowns of teeth, food forced down upon the soft tissues, causing meat holes to be formed.

The irritations mentioned above result in inflammation, followed by congestion of the tissues supporting the teeth. This of course reduces tissue resistance, and the ever present micro-organisms are provided with a perfect soil. Infection takes place, followed by tissue destruction, and the formation of pus pockets. As these pus pockets deepen, the bacteria inhabiting them increase in invasive power.

The tissues supporting the teeth may become diseased, due to debilitating diseases, such as nephritis, syphilis, anemia, chlorosis, or the therapeutic use of mercury, lead, sulphur, etc.

Now when we stop to think that the mouth is richly supplied with blood and lymph spaces, and that the pulps of teeth communicate with the lymphatics of the neck, we realize that we have three wide open gateways by which bacteria may enter the general circulation in a diseased mouth.

Rosenow reports in his "Experimental and Clinical Studies on Focal Infection and Elective Localization: Newer Findings and Their Significance," that he took strains from foci of infection in the mouth and secondary lesions of man, and after devitaliz-

*Read at the December meeting of the Colorado Society of Dental Oral Surgeons.

ing a tooth in a dog's mouth, as practiced by dentists on their patients, he was able to infect the dog's tooth and produce the same lesions in the same location as found in the original subject, recover the organism and repeat the experiment. He found that aerobic cultivation of bacteria reduces their virulence and invasive power.

This teaches us, for instance, that the streptococcus veridans, obtained from the buccal mucous membrane surface, can not have the same invasive power as the same organism taken from the depths of a pyorrheal pocket, or from the apex of a devitalized tooth. The organism obtained from the surface membrane is aerobically cultivated.

Rosenow by his painstaking efforts to obtain material from the depth of foci and metastatic lesions, was able to show the common causal relationship of these organisms in a series of diseases, such as subacute bacterial endocarditis; rheumatic fever; iritis and other diseases of the eye; appendicitis; ulcer of the stomach; cholecystitis and gall stones; pancreatitis, acute and chronic; arthritis and myositis; poliomyelitis; herpes zoster; intercostal neuralgia; multiple neuritis and sciatica; epidemic parotitis; erythemia nodosum; nephritis and nephrolithiasis.

Duke of Kansas City gives case histories showing that chronic foci of infection within the mouth increase the severity of unrelated infectious diseases, such as syphilis, tuberculosis, etc. He says that there seems to be a general deleterious effect produced, and the patients lose weight and show susceptibility to intercurrent diseases.

When the oral sepsis is eradicated, the patient's improvement is very marked.

Indications for extraction and the removal of teeth would be when a patient gives a history of tooth and tonsil infection, swollen glands, draining the mouth and throat area; a blood picture showing a poverty of red cells; reduced hemoglobin and a markedly increased or decreased leucocyte count; a urinalysis showing casts, albumen or sugar; those patients, referred by their physician with a statement that he can find nothing wrong with them, excepting that they complain greatly of fatigue, and their pulse and

blood pressure are slightly lower than normal. The patient may complain of nervousness, malaise, dizziness, drowsiness, inability to concentrate, inexplicable weakness, prostration after slight physical or mental effort; slight tachycardia or bradycardia.

We know that the above symptoms are sometimes due to anaphylactic phenomena and in such cases should demand a good x-ray picture of the full mouth, and carefully study the same; noting the amount of bone resorption, the height of the soft tissues surrounding the teeth, the condition of periodontal membrane, the lamina dura or socket wall and last but not least, whether or not there are any roots left from previous extractions, etc.

It is by no means uncommon to observe pain in the region of the gall bladder, appendix, stomach, joints, cervical glands, etc., a few hours following an extraction of infected teeth. Such reactions may be frequently interpreted as focal reactions caused by the traumatic dissemination of microorganisms, or their products, from the alveolar process.

Frequently the clinical manifestations of chronic appendicitis, cholecystitis, gastric and duodenal ulcer, chronic arthritis, etc., clear up rapidly, following the complete eradication of oral infection.

In conclusion, I want to call your attention to the medical viewpoint. As you know, the dentist sees two classes of patients, those that are well and a few that are sick. Patients who consult a physician are usually ill, and for that reason, the advice given to the average patient is usually more radical, so far as the cleaning up of oral sepsis is concerned.

In justice to our patients, let us consult and work in harmony with the medical profession.

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SYSTOLE

A wise companion is half the journey.—
Russian Proverb.

Nothing is easier than to cheat an honest
man.—Spanish Proverb.

Luck follows the hopeful, ill luck the fear-
ful.—German Proverb.

Don't expect anything of anybody but
yourself.—Frank Crane.

A road of a thousand miles begins with
one step.—Japanese Proverb.

The most manifest sign of wisdom is con-
tinued cheerfulness.—Montaigne.

The man who has done less than his best
has done nothing.—C. M. Schwab.

The first step in the ladder of folly is to
believe oneself wise.—Spanish Proverb.

He who does not think well of the work
he is doing, is made impotent by that very
fact.—Sand.

Do what you can to do what you ought,
and leave hoping and fearing alone.—Thom-
as Huxley.

God almighty first planted a garden. And
indeed it is the purest of human pleasures.—
Francis Bacon.

The world deals good-naturedly with good-
natured people, and I never knew a sulky
misanthropist who quarreled with it, but it
was he, not it, that was in the wrong.—
Thackeray.

For this fear of death is indeed the pre-
tense of wisdom, and not real wisdom, being
the appearance of knowing the unknown;
since no one knows whether death, which
they in their fear apprehend to be the great-
est evil, may not be the greatest good.—
Francis Bacon.

DIASTOLE

"Did your mother die a natural death?"
"Yes, she was hit by a speeding auto-
mobile."

Our printer sometimes mixes commas and
periods. Recently he sent us a galley proof
in which a baby's weight was recorded as
3.435 grams.

"What is Stingyleigh going to buy his
wife for their wedding anniversary?"
"Nothing. He's going to have her wed-
ding ring replated."

An autopsy has just been performed on a
man who was in the hardware business. He
was found to have hob-nailed liver, horse
shoe kidney, and pipe stem arteries.

"Have you heard about poor Charlotte?"
"No. What is it?"
"She has just finished her Add-a-Pearl
necklace and now she's developing a
goitre!"

A few weeks ago the legislature stopped
the clock and kept passing bills. That re-
minds us of a fellow who stopped the calen-
dar several years ago and has been passing
our bill ever since.

Old Mother Hubbard went to the eupboard
To get a bottle of gin,
But when she got there, the eupboard was
bare;
The chief of police had been in.

An elderly man, who was becoming child-
ish and suspicious, was given a radio by his
son in the hope that it would afford new
interests.

"I can't hear anything," said the old
gentleman, when he had adjusted the head-
set.

"Can't you hear the church organ, Dad?"
asked his son.

"Yes," answered the old gentleman, "but
I can't hear what the neighbors are say-
ing."

NEWS NOTES

Dr. Cuthbert Powell has returned from a vacation of six weeks spent in Honolulu.

Dr. S. B. Childs has returned from a trip to numerous points in Florida.

Dr. Mortimer A. Moses has assumed charge of Mount Airy Sanitarium, Denver.

Dr. Glaister H. Ashley of Denver has left for the East, where he will take post-graduate work.

Dr. D. G. Monaghan of Denver is recovering from a recent operation.

Dr. P. J. Carlin has returned to Denver after six weeks in California.

Two Colorado physicians are taking postgraduate work in pediatrics at Washington University, St. Louis—Dr. George H. Cattermole of Boulder and Dr. C. W. Bixler of Erie.

Dr. Edward Welles Collins has returned from a vacation in Egypt.

Dr. Kenneth D. A. Allen of Denver was recently married in Denver to Miss Ruth Hoss.

Dr. P. J. Potnisje is making progress after a recent operation.

Dr. Wiley Jones is taking the trip from San Pedro, California, to Boston via the Panama Canal.

Dr. Horace Wetherill, formerly of Denver, is one of the founders of the Pacific Coast Surgeons' Association, a newly formed organization.

Newly appointed members of the State Board of Medical Examiners are Dr. C. F. Andrew of Longmont, Dr. V. A. Hutton of Florence, and Dr. Philip Work of Denver.

Dr. T. Leon Howard was operated for appendicitis early in April.

Dr. C. W. Thompson of Pueblo has been appointed to the State Board of Health.

Drs. Walter Reed and A. M. Chase of Boulder are touring California by automobile.

The Eleventh Annual Meeting of the Medical Women's National Association, Inc., will be held in Atlantic City, New Jersey, May 25 and 26, 1925. Official Headquarters: Marlborough-Blenheim Hotel.

The following Coloradoans have been appointed to the Governing Board of the Gorgas Memorial Institute.

Boulder—Carbon Gillaspie.

Colorado Springs—Gerald B. Webb.

Denver—J. W. Ames, James R. Arneill, Tyson S. Dines, William C. Finnoff, Carl D. Fisher, Leonard Freeman, Thomas J. Gallagher, F. P. Gengenbach, W. W. Grant, J. C. Irvine, Edward Jackson, S. Fosdick Jones, Tracy R. Love, H. R. McGraw, Mrs. Joseph Nussbaum, Samuel Grover Phillips, John F. Roe, Matt R. Root, David A. Strickler, James J. Waring, William Whitridge Williams.

Montrose—Edgar Hadley.

Pueblo—Thomas A. Stoddard.

Salida—George H. Curfman.

Colorado hospitals approved for internships by the Council on Medical Education and Hospitals of the American Medical Association include the following: St. Francis Hospital, Colorado Springs; Children's Hospital, Denver; Denver General Hospital, Denver; Mercy Hospital, Denver; St. Anthony's Hospital, Denver; St. Joseph's Hospital, Denver; St. Luke's Hospital, Denver.

NEW BOOKS

THE PASSING OF THE PHANTOMS. By C. J. Patten. 12mo. New York: E. P. Dutton & Co. \$1. A study of evolutionary psychology and morals.

HEREDITY IN NERVOUS AND MENTAL DISEASE. 8vo. New York: Paul B. Hoeber. An investigation by the Association for Research in Nervous and Mental Disease.

THE MEANING OF DREAMS. By Robert Graves. 12mo. New York: Greenberg, Publisher, Inc. \$2. Past theories to the time of Freud, varieties of dreams, primitive thoughts, dreams and poetry, etc.

THE PSYCHOLOGY OF A MUSICAL PRODIGY. By G. Revesz. 12mo. New York: Harcourt, Brace & Co. Its subject is Erwin Nyiregyhazi. The first attempt to make a scientific study of a musical composer from his earliest years.

CALLINICUS. By J. B. S. Haldane. 12mo. New York: E. P. Dutton & Co. A defense of chemical warfare.

THE EDUCATION OF BEHAVIOR. By I. B. Saxby. 12mo. New York: G. P. Putnam's Sons. The bearing of the present knowledge of psychology on the problems of behavior which have to be faced by those in charge of boys and girls during adolescence.

PSYCHOLOGY FOR CHILD TRAINING. By Arland D. Weeks. 12mo. New York: D. Appleton & Co. \$2. A book for parents who wish to bring up their children in the best manner possible.

INTRODUCTION TO THEORETICAL PHYSICS. By Arthur Haas. 8vo. New York: D. Van Nostrand Company. \$6. (Volume I.) Quantitative principles of physical science.

MENTAL DISEASES. By James V. May. 8vo. Boston: Richard Badger. A public health problem.

THE CHALLENGE OF CHILDHOOD. By Ira S. Wile. 8vo. New York: Thomas Seltzer. Studies in personality and behavior.

THE DEGENERATIVE DISEASES. By Lewellys F. Barker and Thomas P. Sprunt. 12mo. New York: Harper & Bros. Diseases which are the common causes of premature death.

ORCHARD MANAGEMENT. By J. H. Gourley. New York: Harper & Brothers. \$2. The science of fruit growing, by the chief of the Department of Horticulture at the Ohio Experiment Station.

THE RACES OF MAN AND THEIR DISTRIBUTION. By A. C. Haddon. 12mo. New York: The Macmillan Company. \$2.50. The classification of races, by a reader in ethnology in the University of Cambridge.

GOOD HEALTH AND LONG LIFE. By Lucien C. Warner. 12mo. New York: Association Press. Food, diet, exercise and general care of health.

SELECTED MEDICAL PAPERS. By Alfred Worcester. 12mo. Boston: Four Seas Company. \$3. Eighteen articles reprinted from the writings of Dr. Alfred Worcester.

CHILD HYGIENE. By S. Josephine Baker. New York: Harper & Brothers. \$5. Health rules for the young.

PROFITABLE SCIENCE IN INDUSTRY. By Dwight T. Farnham, James A. Hall, R. W. King and H. E. Howe. 12mo New York: The Macmillan Company. The work of the scientist in its bearing upon industry, machinery and scientific management.

REJUVENATION. By Norman Haire. 12mo. New York: The Macmillan Company. The work of Steinach, Voronoff and others.

DIABETIC DIET. By A. Doris McHenry and Marjorie M. Cooper. 12mo. New York: Harper & Bros. \$2. A handbook for diabetics.

PRINCIPLES OF PSYCHOTHERAPY. By Dr. Pierre Janet. Translated by H. M. and E. R. Guthrie. 322 pp. New York: The MacMillan Company. 1924. \$3.

MAGAZINE ARTICLES

CANCER AND THE BLACK MAN. By J. Ellis Barker. Fortnightly Review, March.

IS CRIME PREVENTABLE? What's Bred in the Bone. By N. McClark. The Intelligent Criminal. By W. B. Pitkin. Forum, April.

THE RENAISSANCE OF ALCHEMY. Independent, April 11.

LORD RAYLEIGH: THE MAN WHO WEIGHED THE ATMOSPHERE. By Sir Oliver Lodge. Living Age, April 11.

SPRING AND SUMMER COLDS. By Woods Hutchinson, M.D. Ladies' Home Journal, April.

UNDER THE DOCTOR'S CONSTANT CARE. By Charles Gilmore Kerley, M.D. Modern Priscilla, May.

HOW IT FEELS TO BE BLIND. By J. E. Macrae. Woman's Home Companion, May.

RACE SUICIDE—NO MURDER. By J. Langdon Davies. New Republic, April 15.

THE NEO-MALTHUSIAN. Nation, April 15.

BENDING THE TWIG. By Clifford G. Grulee, M.D. Woman's Home Companion, May.

HEART DISEASE. By James A. Tebey. American Mercury, April.

OYSTERS ON THE HALF SHELL. By O. P. Newman. Reviews of Reviews, April.

THE RISING TIDE OF INSECT PESTS. By W. A. Dupuy. Dearborn Independent, March 21.

RELIGION AND THE DOCTRINE OF EVOLUTION. By G. B. Smith, American Review, March-April.

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INSTINCT AS A GUIDE TO FOOD. By Benjamin Harrow and Casinivi Funk, American Mercury, April.

PITFALLS IN TOURIST CAMP SANITATION. By Dr. Oscar Dowling, Dearborn Independent, March 21.

NEW LIGHT ON EVOLUTION. By Watson Davis. Current History, April.

GIVE HUMAN NATURE A CHANCE. By Chauncey M. Depew. Collier's, April 18.

CORRESPONDENCE

CHRISTIAN SCIENCE

To Colorado Medicine:

A writer in your April issue states that he would be interested to know how a Christian Science practitioner can consistently sign a certificate of illness where one is required "when his therapy consists in denying the existence of disease."

The occasion of the inquirer's confusion on the subject is shown in the quoted portion of his remarks, for the assumption therein stated is quite incomplete and incorrect. Christian Science is Scriptural in its origin, in the premise and in the conclusion of its logic. Christian Science accepts the Bible declarations that "God saw all that He had made, and behold, it was very good," that "All things were made by Him; and without Him was not anything made that was made." From that premise Christian Science naturally and consistently deduces that whatever does not speak of the goodness and harmony of God is but an expression of erring human sense. Sickness is very real to the human sense, but no one can reasonably claim that sickness is eternal and a part of the absolute reality of being in God's sight, for if it were we could never be rid of sickness.

From this it will be seen that the therapy of Christian Science does not consist of, nor depend upon a negative premise, but rather does it operate from the affirmative spiritual facts about God and His creation. Thus Christian Scientists obey Jesus' counsel to "render unto Caesar the things that are Caesar's" by signing certificates of illness, and also "render unto God the things that are God's" by endeavoring in their prayer or treatment to "know the truth," which Christ Jesus said would make men free. Furthermore let me here state that Christian Scientists have no quarrel with doctors of medicine, for, as Mrs. Eddy writes, "Great respect is due the motives and philanthropy of the higher class of physicians." (Science and Health p. 151).

W. STUART BOOTH,
Christian Science Committee on Publication.

Reply: Despite the foregoing explanation, we remain a little hazy concerning the mechanism of Christian Science.

A man cuts his knee and his trousers. He admits the cut in his clothing, but not in his flesh. A woman has a wart on her nose. She denies the existence of the wart, but acknowledges the reality of the nose.

Here is a form of differential nihilism in which the credulous mind denies or affirms the existence of things according to caprice.

We prefer the more critical analysis of the bard:

"There was a faith-healer of Deal
Who said 'Although pain isn't real,
If I sit on a pin,
And it punctures my skin,
I dislike what I fancy I feel.'"

The Plague

Bubonic plague was first recorded as occurring in A. D. 542 in Pelusium, Egypt, it having spread by trade routes over the then known world, until, at its height, the mortality was from 5,000 to 10,000 persons a day.—Dearborn Independent.

MEDICAL SOCIETIES

COLORADO OPHTHALMOLOGICAL

The regular meeting of the **Colorado Ophthalmological Society** was held on Saturday, February 21, 1925, in the assembly hall of the Medical Society of the City and County of Denver, Dr. G. L. Strader presiding.

E. E. McKeown, Denver, presented a man whose eye had on November 25, 1924, been penetrated by a small piece of steel, which had been extracted with the hand magnet through a scleral incision several weeks later. At first there had been very satisfactory clearing of vision to 16/25. But two months later the patient came in with vision of this eye reduced to 16/70, fluid vitreous, and a retinal detachment. Discussed by W. C. Finnoff, W. H. Crisp, J. A. Patterson, J. M. Shields, C. E. Walker, and W. C. Bane.

D. A. Strickler, Denver, presented a man aged 39 years whose right eye had recently shown gradual absorption of a cataract which had developed some years earlier, and whose left eye had during the last two months developed a disturbance of vision in association with vitreous opacities. The condition was possibly due to nasal and tonsillar infection. Discussed by C. E. Walker.

D. A. Strickler, Denver, presented a man aged 42 years who six years previously had had partial paralysis of the left external rectus muscle from which he had approximately recovered in about nine days. The patient had in the meantime been under antisyphilitic treatment. He had returned recently on account of dimness of vision which had been coming on for eight or nine months. There was atrophy of each optic nerve, with decidedly contracted fields. The condition of some of the nasal sinuses was suspicious. Discussed by J. A. Patterson and W. H. Crisp.

C. E. Sidwell, Longmont, presented a boy aged 11 years, whose right eye was extremely buphthalmic. The lens was cataractous. Discussed by W. C. Finnoff, J. M. Shields, W. H. Crisp, and G. F. Libby.

W. C. Finnoff, Denver, presented a typical case of amaurotic family idiocy in a girl aged fourteen months. The child had been healthy until four months of age, when the parents had first noticed that she did not fix on bright objects. She had never sat up and there was a general muscular weakness. Ophthalmoscopically the picture was characteristic, with a cherry red spot at the center of the macula, surrounded by a zone of pale retina.

W. C. Finnoff, Denver, presented a young man aged 19 years whose vision had been failing since the middle of the previous year, first in the right and then in the left eye. There had been occasional headaches and occasional attacks of vomiting, not of a projectile character. On February 2, 1925, the right eye was blind, vision of the left eye 0.2 eccentrically to the right and unimproved with lenses. The left visual field showed complete temporal hemianopsia, with slight encroachment on the nasal side above. By x-ray the sella turcica showed a shallow bed and very large processes, the anterior and posterior apparently meeting. It was thought probable that the underlying cause was pressure on the chiasm. Discussed by W. H. Crisp.

D. H. O'Rourke, Denver, presented a man aged 29 years who in the course of the previous ten weeks had developed an indurated ulcer involving

the outer two-thirds of the margin of the right upper lid. Improvement had followed thorough swabbing of the ulcer with concentrated lactic acid, but the diagnosis was in doubt. Discussed by W. C. Finnoff.

D. H. O'Rourke, Denver, presented a man who was suffering from advanced pulmonary tuberculosis, and whose vision had failed rapidly in September, 1923, in association with severe frontal headaches and projectile vomiting. At that time there had been a bilateral papilledema of two diopters. Two weeks later the papilledema had increased, and the patient was semicomatose, the general basis of the condition being considered to be a tuberculous meningitis. But rather more than two years later, in February, 1925, the patient had walked into the clinic with bilateral optic atrophy. Discussed by W. A. Sedwick, G. F. Libby, W. C. Finnoff, and W. H. Crisp.

W. C. Bane, Denver, presented a patient aged 54 years who had decided central scotomata. Ophthalmoscopic examination disclosed in the macular region of each eye a mottled, approximately circular area three disc diameters across, in which the retinal pigment was completely absorbed. Discussed by W. H. Crisp and W. C. Finnoff.

W. C. Bane, Denver, showed an automobile mechanic whose right eye had been injured by the end of a cotter key which the patient had cut off with a chisel. The eye was quieting down rather slowly.

C. O. Eigler, Denver, presented a woman who showed in each eye at the center of the macula a minute, slightly depressed area of old retinochoroiditis.

The regular meeting of the **Colorado Ophthalmological Society** was held on Saturday, March 21, 1925, in the assembly hall of the Medical Society of the City and County of Denver, Dr. W. F. Matson presiding.

F. R. Spencer and C. L. LaRue, Boulder, presented a remarkable family group of cases of congenital defects involving the crystalline lens and the uveal tract. The mother had a coloboma of the right iris and a very slight coloboma of the left iris, and also a coloboma of the lens, with a very delicate central opacity of the left lens. A son aged nine years had nystagmus, extremely narrow irides, a rather dense opacity in the right lens and a fainter one in the center of the left lens, and coloboma of the ciliary body, the choroid, and the optic nerve. Another son aged two years had opacities of both lenses, and probably a coloboma involving all the uveal structures. A third boy, and probably all the relatives, were free from ocular defects. Discussed by Edward Jackson and W. H. Crisp.

D. A. Strickler, Denver, showed a man aged 47 years whose right eye had a central retinitis, with numerous small hemorrhages in the macular region. Discussed by W. C. Bane, E. R. Neepser, Edward Jackson, and W. A. Sedwick.

W. M. Bane, Denver, showed a man aged 31 years whose left eye had received a severe blow from the handle of a heavy wrench. There was at first vertical diplopia which was corrected by a five degree prism base down before the left eye. The deviation rapidly diminished to 1.5 degrees.

W. M. Bane, Denver, showed for further observation the patient who had been presented in February, 1924, on account of a glancing injury to the right eye by a piece of steel which passed through the upper lid. Discussed by Edward Jackson.

W. C. Bennett, Denver, presented an ex-soldier who had an interstitial keratitis of the right eye,

after several other ocular disturbances which suggested a syphilitic etiology. Discussed by W. A. Sedwick, G. F. Libby, and W. H. Crisp.

WM. H. CRISP,
Secretary.

DELTA COUNTY

Dinner at the Delta House. Present thirteen members and Dr. Isam Burgin, visitor from Seldovia, Alaska. Scientific session in the Delta Clinic and Hospital Association reception room.

Paper by Dr. Bolton on "Normal Heart Sounds and their Transmission," with demonstration.

Paper by Dr. Cleland on "Pathological Heart Sounds and their Transmission; Presentation of Cases." General discussion.

Presentation of specimen of vesical calculus 1½x2-in., through the center of which was a 2¾-in. needle used for sewing potato sacks, which specimen was removed from a female patient twenty-four years old. The needle had been in the bladder twelve years, had been inserted by playmate. Discussion by McArthur, Myers, and Lewis.

Meeting to be held in Hotchkiss next month.

HARRY A. SMITH,
Secretary.

LAS ANIMAS COUNTY

New officers Las Animas County: President, Ben Beshoar, Trinidad; Vice-President, M. C. Albi, Trinidad; Secretary-Treasurer, P. W. Carmichael, Sopris; Delegate, Ben Beshoar.

OTERO AND PROWERS COUNTIES

The Otero and Prowers Counties Medical Societies, with their ladies, were entertained at a dinner at 6 p. m., Monday, April 6th, at U. S. Veterans Hospital 80 at Ft. Lyons. Following dinner the visiting ladies were entertained by the ladies of the post while the doctors attended a medical meeting given by the medical staff of the Hospital, with Dr. J. F. Wallace, Senior Medical Officer in Charge, as Chairman. Combined attendance was about seventy-five.

The program follows:

1. Tuberculous Laryngitis with demonstration of Cases:

Dr. R. E. Runkle.

2. Cardiac Disease complicating Pulmonary Tuberculosis:

Dr. E. B. Miller.

3. "The Hospital"—Paper by:

Dr. B. K. Hays.

4. X-ray slide demonstration:

Dr. Frank R. Ruff.

5. Demonstration of Pathological Specimens:

Dr. R. M. Fulwider.

ROBERT C. COOK,
Acting Medical Officer in Charge.

Cancer

Dr. Howard Canning Taylor, Professor of Clinical Gynecology at the College of Physicians and Surgeon and President of the American Gynecological Society, was recently elected President of the American Society for the Control of Cancer. Dr. Taylor, who has been the Society's Vice-president and Chairman of its Executive Committee, succeeds Dr. Charles A. Powers, deceased, of Denver.

BOOK REVIEWS

Human Constitution by George Draper, M.D., Associate in Medicine at Columbia University, New York. W. B. Saunders Company, 1924.

This book is the first of a proposed series of similar publications from the Constitution Clinic of the Presbyterian Hospital and deals with a method of studying one phase of the subject, Human Constitution. The four main panels of personality (panel being used in the Japanese term of a screen composed of four panels across which was painted a complete picture) which present themselves for investigation are the hereditary unit characters found in the domains of anatomy, physiology, psychology and immunity. The unconscious skill of the older clinicians in what has been called the "clinical hunch" is believed to have been due to a frequent repetition of certain combinations of characters grouping a large number of individuals. The anatomic features of an individual form one of a set of basic unit characters, predetermined by heredity, and influenced to some extent by environment, which together make up the constitution. This book is entirely concerned with the anatomic panel with a view to correlating it with disease disposition. The book is replete with food for thought. Although a set of only six diseases was chosen for study, including pernicious anemia, pulmonary tuberculosis, asthma due to known protein sensitization, nephritis and hypertension, gall-bladder disease, and gastric and duodenal ulcer, and a total of 298 cases upon whom complete measurements were made, some valuable information on the correlation of diseases and the anatomic panel were obtained. The various anatomic configurations for the patients studied are plotted in a large number of charts. The conditions are also divided into the incidence in male and female. Adults only are considered in this book. The author sincerely hopes that no misunderstanding of the argument will cloud the issue and give rise to the thought that because an individual possesses a given anatomic panel therefore he must develop a given malady. Nothing is further from the purpose of this book than to promote such an idea. The capacity of an individual to react with or not to react with a particular external agent or menace is a constitutional quality which is just as specific a quality as body size and conformation, function, or gesture, or psychic pattern. The author believes that a grouping according to disease potentialities will do much to develop preventive medicine for the individual, and is a different phase from the blanket protection of communities from the scourge of contagious disease by Health Department regulations. The book is well written and can be recommended to all interested in the constitution of man, a phase of scientific medicine heretofore greatly neglected except in academic surroundings.

H. J. CORPER.

Annual Reprint of the Reports of the Council on Pharmacy and Chemistry of the American Medical Association for 1924. Cloth. Price, postpaid, \$1.00. Pp. 82. Chicago: American Medical Association, 1925.

This volume contains the reports of the Council on Pharmacy and Chemistry that have been adopted and authorized for publication during 1924. Some of these reports have appeared in The

Journal of the American Medical Association. Others are now published for the first time.

The annual volumes of the "Council Reports" may be looked on as the companion volumes to New and Nonofficial Remedies. While the latter contains the medicinal preparations that are found acceptable, the reports contain the reasons why certain products were not accepted. Thus the present volume contains reports on the following products which the Council denied admission to New and Nonofficial Remedies: Aolan; Aspatol; Atussin, Peptoproteasi, Paraganglina Vassale, Fosfoplasmina, Asmoganglina and Endo-Ovarina Tablets; Borosodine; Carsinol; Colodine and Colobromidine; Ferrasin; Glyeuthymenol; Hoyt's Gluten Flakes; Iodeol; Loefflund's Food Maltose; Mistura Creosote Comp. (Killgore's) and Tablets Cascara Comp. (Killgore's); Neo-Riodine; Nicomors; Peptone Solution for Hypodermatic Use (Armour); Pixalbol; "P-O-4"; Pollantin; Promonta; Pruritus Vaccine Treatment-Lederle (Montague Method); Restor-Vin; Some "Mixed" Vaccines of G. H. Sherman and Tersul Hiller.

The volume also contains reports on products which were included in former editions of New and Nonofficial Remedies but which will not appear in the 1925 edition because they were found ineligible for further recognition. Among these are polyvalent antipneumococcic serum, colon bacillus vaccine, gonococcus serum and gonococcus vaccine.

The volume contains a number of reports of a general nature: for instance a report on the therapeutic value of benzyl benzoate; a report on anaphylaxis produced by thromboplastic substances and a report on the therapeutic use of digitalis.

Physicians who keep fully informed in regard to the value of proprietary remedies will wish to own this book.

Abt's Pediatrics. By 150 specialists. Edited by Isaac A. Abt, M.D., Professor of Diseases of Children, Northwestern University Medical School, Chicago. Set complete in eight octavo volumes totalling 8,000 pages with 1,500 illustrations, and separate Index volume free. Now ready—Volume IV containing 1,271 pages with 271 illustrations. Philadelphia and London: W. B. Saunders Company, 1924. Cloth, \$10.00 per volume. Sold by Subscription.

Vol. IV is devoted to the pleura, lungs, thorax, circulation, heart, blood-vessels, the blood, endocrine organs, spleen, lymph-nodes, kidney, bladder, urine, male and female genital organs. There are 26 contributors, 218 illustrations.

There is an extensive discussion of surgery of the thorax, including the various methods of treating empyema.

A very comprehensive chapter on electrocardiography in children is presented, featuring both the acquired and congenital heart disorders.

The diseases of the kidney are discussed in a very concise and practical manner, consequently this chapter is of especial value to the busy practitioner.

The other subjects are very interestingly presented and very complete for reference work.

BERRYMAN GREEN.

Operative Surgery. By J. Shelton Horsley, M.D., F. A. C. S. Attending Surgeon, St. Elizabeth's Hospital, Richmond, Va. 784 pages with 666 original illustrations. Second Edition. The C. V. Mosby Company. St. Louis, 1924. Price, \$12.50.

A treatise on operative surgery of 774 pages and an index printed on excellent glossy paper and

divided into 30 chapters, the first three of which are worth the price of the volume.

The second edition is justified by the incorporation of several very recent contributions to surgery, notably the lymphaticostomy for diffuse septic peritonitis, pulmonary lobectomy, valvotomy for mitral stenosis and the intestinal resection by Kerr. The author's surgical concept is founded on well established physiology, without which no work on surgery can be safely followed.

The consideration of malignancy from its latest development by an experienced surgeon is extremely refreshing and valuable. The chapter on nerve repair is in accord with modern methods, while that on scalp, skull and brain carries with it many new and sound suggestions regarding technique. The illustrations are well chosen, very clear and accurate, and while there is much compiled from the best of recent surgical literature, it is all very practical, makes interesting reading and has been selected by one whose judgment is mature and whose surgical work has been outstanding as original and practical for many years.

C. E. TENNANT.

Operative Surgery. Vols. V and VI. Covering the Operative Technic involved in the operations of general and special surgery. By Warren Stone Bickham, M.D., F. A. C. S. Former Surgeon in charge of General Surgery, Manhattan State Hospital, New York. Former Visiting Surgeon to Charity and to Touro Hospitals, New Orleans. In six octavo volumes totaling approximately 5,400 pages with 6,378 illustrations, mostly original and separate Desk Index Volume. Philadelphia and London: W. B. Saunders Company, 1924. Cloth, \$10.00 per volume. Sold by subscription only. Index Volume Free.

Vols. V and VI include Operations upon the Colo-Rectal-Anal Tract; The Surgery of the Genito-Urinary System; Male and Female Generative Organs; Operations on The New Born; and finally a chapter on Operations for "Deformities and Disabilities not included in the preceding chapters." The final volume is a general index to the preceding volumes. It is a book of one hundred and eighty-nine pages and the index is so complete that any subject is easily looked up.

The work as a whole is an admirable compilation of operations covering every specialty in surgery, beautifully illustrated, clearly and concisely described. The author is to be greatly admired for his courageousness in undertaking such a stupendous task—a task that consumed ten years of his life and untold hours of study and concentration; the delving into subjects in which he had little interest that his work might be uniformly good and complete. It would seem humanly impossible for one man to cover the surgery of all the specialties. Considering the many changes that are constantly taking place in every specialty, it must be very discouraging to any man who devotes years to a work on medicine lest much of his finished product be antiquated by the time it is published.

R. CRAIG PRICE.

And then again you can recognize the approach to Easy Street by the nervous wrecks along the way.—Spartanburg Herald.

Panel Doctor (to gloomy patient): "You must drive away this depression. Practice a spirit of cheerfulness. Sing at your work, as it were."

Patient: "Sing at my work? Why, it can't be done, sir. I'm a glassblower."—Punch.

Colorado Medicine

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EDITORIAL NOTES AND COMMENT

The Mental Age

Dr. Emily T. Burr, of the Vocational Adjustment Bureau, has made a study of 375 adolescent girls in industrial positions. She finds that the girl of inferior intelligence is better suited to the dull routine of simple work than the girl of keener mind. The brighter girl finds simple routine irksome, whereupon she becomes restless and shortly gives up her employment.

Girls with a mental age of seven years do satisfactory work in packing small articles, such as powder puffs. Where fragile goods are handled, such as hair nets, a mental age of ten is required. The simplest work on sewing machines demands a mental age of twelve; while higher mental ages are required as the work becomes more complicated.

Hospital Beds

The U. S. Department of Commerce recommends that hospital beds be standardized. The length recommended is 78 inches, the width 36 inches, and the height 27 inches. At present hospital beds are made in 33 different lengths, 34 different widths, and 44 different heights.

Chemical Forecasting

Professor Hugo Sellheim, of Halle, claims that he is able to diagnose pregnancy by a modification of the Abderhalden test. The test, he states, is simpler, more sensitive, and more reliable than the Abderhalden test, and it indicates the sex of the child when pregnancy is present.

Morphine and Heroin

Drs. A. G. DuMez and Lawrence Kolb, of the U. S. Public Health Service, have conducted a series of experiments with mice to determine whether the blood serum of morphine addicts would protect them against the toxic effect of morphine. Similar experiments were made with heroin serum and heroin. The results indicate that no protection is afforded by the serum, and little information was gleaned concerning the chemistry of narcotic tolerance.

Radium

According to Dr. Charles H. Viol, less than half a pound of radium has been produced in the world since Madame Curie discovered the element in 1898. The present value of the world's radium supply is estimated at fifteen million dollars.

Industrial Poisons

The National Safety Council plans to issue a series of data sheets on common industrial poisons, such as aniline, arsenic, carbon monoxide, lead, phosphorus, etc. The publications will supply information on the usual forms of exposure, the symptoms developed by the victims, and the various methods of treatment and prevention. Prevention is the goal to which the work is directed.

Potato Poisoning

Two fatal cases of poisoning by green potatoes have been reported by Albert A. Hansen of the Extension Department of Purdue University.

The explanation offered is that the potatoes were stored under straw, that part of the straw was scratched away by chickens, and that the potatoes became green from exposure to the sun.

Poisoning by green potatoes appears to be a scientific fact, rather than a superstition.

College Blood

Dr. Edward S. Godfrey, Jr., Director of the Division of Communicable Diseases of the New York State Department of Health, has invited college students who have had measles to sell their blood during convalescence at \$10 a pint. A pint of such blood produces enough convalescent serum to protect thirty babies against the disease. The serum is considered effective if given within six days after exposure to infection.

Light Treated Milk

At the meeting of the American Pediatric Society, Dr. Benjamin Kramer reported his results in treating rachitic children with milk that had been exposed to ultra-violet light. Eight children were studied and they are stated to have shown improvement to x-ray examination in three or four weeks.

Polarized Light

In biology, the influence of polarized light is as little understood as that of ultra-violet rays. Moonlight is largely polarized, and it has been observed that fish spoil more rapidly in moonlight than in the dark. Recent researches at Princeton University show that the growth of the luminescent bacteria on the fish is stimulated by polarized light.

There is an interesting correlation between these researches and the observation of Miss E. S. Semmens, an English botanist, that polarized light accelerates the germination of seeds.

Iodized Salt

Dr. Matthias Nicoll, Jr., State Commissioner of Health for New York, has issued a warning against self-dosing with iodine. He points out that while such salt may prevent

goitre in children, it may also do harm to adults who have goitre already developed.

Safe Water

On public highways at the entrance of certain towns the Minnesota State Board of Health has posted signs informing automobile tourists that the city water supply has been approved by the board. The signs protect the traveling public and furnish a stimulus to the municipalities that fall below standard.

Sifting Suicide

Under the auspices of the National Committee for Mental Hygiene, Dr. A. Warren Stearns has made a study of 167 cases of suicide occurring in Massachusetts. He found that 65 deaths, or 32.9 per cent, were attributable to mental disease.

In 1921 the Metropolitan Life Insurance Company recorded 1,081 suicides among its industrial policyholders. In one case in five, mental disease was specified as a contributory cause.

School Insurance

Following the example of other Swiss cantons, Geneva has passed a law providing for compulsory insurance of school children against disease and accident. The insurance fund pays three-fourths of the cost of medical care and maintenance during sickness. The insurance premiums are paid in part by the parents and in part by government subsidies.

Industrial Fatalities

The National Safety Council reports the number of industrial fatalities occurring in Colorado in 1923 as 168. This figure was reduced in 1924 to 140.

Cornell Vaccinates

Beginning with the fall of 1925, Cornell University will require all students to be vaccinated before they are admitted to the institution.

Radio Warnings

The League of Nations is broadcasting each week from Saigon, French Indo-China,

a report on the state of health of the Far East, the plague area of the world. It is expected that early news on epidemics will permit quarantine regulations to be established in sufficient time to enable other countries to protect themselves against invasion by disease.

Stealing a Hospital

Simon J. Murphy donated a hospital to the city of Whittier, California, and stipulated that only accredited physicians be admitted to the staff.

The medical underworld bestirred itself, forced a referendum vote upon the city, and secured an ordinance opening the hospital to sundry "practitioners."

Mr. Murphy now demands that the city observe the terms of his gift, or refund \$325,000, the cost of the hospital.

The situation is ludicrous, but it reveals the power of the cults, and the weakness of a medical profession that is poorly organized to protect itself.

Problems

An editorial in Colorado Medicine of last September pointed out that the Retail Merchants' Bureau of Denver did not permit its members (except four surgical supply houses) to advertise in our journal, and that a blackball therefore existed against Colorado Medicine.

The State Society took cognizance of the fact and passed a resolution.

Meanwhile the editor has endeavored to maintain the advertising by barrage methods. Each month he has sent to different parts of the country a hundred advertising letters accompanied by sample copies of Colorado Medicine. Responses have come now and then, and the advertising has continued to pay more than half the cost of the journal. Now, however, this circularizing must be discontinued, for the cost under the new postal rates become prohibitive.

It is time for the Society again to consider its journal, and the means by which advertising may be secured in our own state.

State Medical History

The May issue of "California and Western Medicine" prints an article by Dr.

George D. Lyman on "The Beginnings of California's Medical History." It is an able contribution, and covers the state's medical history from the time of Pedro Prat, the first Surgeon-General of the Royal Presidio of Monterey, to the founding of the Cooper Medical School.

In various parts of the country state medical history is coming to the fore.

A Watchdog

The New York State Journal of Medicine pays particular attention to health legislation. In the recent session it watched every move of the state legislature and published fifteen weekly issues to let its readers know what was going on. Such vigilance explains the high position held by public health in New York.

Child Marriage

The Russell Sage Foundation has made an investigation of child marriage in the United States. It finds that within the past 36 years approximately 343,000 girls have married when less than sixteen years old, and 324,000 boys when less than seventeen. In general these marriages have not been replete with romance as popularly supposed. The Foundation regards eighteen years as the minimum marriage age which our cultural standards should require.

The Increase in Population

The National Bureau of Economic Research points out that the increase in population of the United States is due less to immigration than to the excess of births over deaths. In the past sixteen years there were 41,000,000 births and 22,000,000 deaths, giving an increase of 19,000,000 to the population. During this period immigration added only 5,500,000 to our number.

Erratum

An editorial in the May issue of Colorado Medicine made reference to the world's potential food supply as being adequate for only eight or nine million people. This was a misprint; "million" should read "billion," and readers are requested to adjust their appetites accordingly.

A HAY-FEVER PLANT SURVEY OF THE CITY AND COUNTY OF DENVER*

JAMES J. WARING, M.D.
DENVER, COLORADO

This paper is a brief preliminary report of the Chairman of the Hay-Fever Committee of the Colorado State Historical and Natural History Society. The complete report will be published elsewhere.

SYNOPSIS

- I. The Importance of the Botanical Survey.
 - A. To Diagnosis.
 - B. To Treatment.
- II. Plan of the Survey.
- III. Field Report.
- IV. Conclusions.

I. The Importance of the Botanical Survey

A. To Diagnosis. Since the development of hay-fever depends upon a quantity of pollen sufficient to produce a reaction coming in contact with the conjunctivae and mucous membranes of the nose of a sensitized person, and since the radius of action of any given source of supply of pollen however abundant is relatively limited, the importance of the flora of the sufferer's environment becomes immediately manifest. Now the inconspicuous plants that cause hay-fever vary in their occurrence just as do the more conspicuous trees and flowers. A certain species may be very abundant and therefore of great importance in one locality and entirely absent and of no importance in another. To illustrate, Bermuda Grass (*Capriola dactylon*) is a chief cause of hay-fever in Arizona and Texas from April to November, and yet this grass is not mentioned by Mullin of Colorado Springs and was not found in the City and County of Denver in the season of 1924. Summer Cypress (*Kochia scoparia*) comparatively rare in Colorado Springs and Western Water-Hemp (*Acnida tamariscina*), not mentioned by Mullin, are both common and probably important causes of hay-fever in Denver.

B. To Treatment. Because the pollens of the plants of each group resemble each other microscopically and give similar bio-

logic reactions, Scheppegrell divided the principal hay-fever weeds into four groups: Ambrosiaceae, Artemisia, Chenopodiaceae and Gramineae. After some experimentation, he concluded that in the vast majority of instances the pollen of any one member of one of these groups was suitable for therapeutic administration to a patient sensitized to any other member of the same group. For example, a patient sensitized to the pollen of the cocklebur (*Xanthium*) could be successfully treated with the pollen extract of the Giant Ragweed (*Ambrosia trifida*) or a patient sensitized to the pollen of June Grass (*Poa annua*) could be successfully treated with the pollen of Timothy (*Phleum pratense*), etc. Unfortunately for the simplification of treatment, Scheppegrell's observations and those of Goodale and Cooke and Vander Veer in harmony therewith, have not been confirmed by other investigators, notably Phillips, Bernton and Watson and Kibler. Pinness found uniformly poor results in the treatment with Timothy pollen of a group of fifteen cases not reacting to Timothy but to Orchard Grass and Red-top. Duke states that he has seen hay-fever patients sensitized to the pollen from Ragweed growing in their immediate vicinity and completely insensitive to the pollen from Ragweed growing less than thirty miles away. Harvey Monroe Hall, formerly head of the Department of Botany, University of California, after making a careful study of the hay-fever plants of California, says: "The only safe procedure is to test and treat with specific pollens except in those cases where one's own experience dictates a different course". W. V. Mullin of Colorado Springs is of the same opinion: "Treatment with pollens gathered in the region in which the attacks occur is always advisable and often essential". This brief review will suffice to show the growing conviction of the superiority of treatment with extracts of pollen gathered in the patient's immediate environment. It must be admitted, however,

*Read before the Medical Society of the City and County of Denver, May 5, 1925.

in the first place, that some patients may be desensitized by the "group method" and in the second place, that most patients sensitized to a specific pollen will react to this pollen wherever found.

II. Plan of the Survey

This survey was undertaken to identify the hay-fever weeds of the City and County of Denver, to determine their distribution and their seasons of pollination. The field work was done by Miss Maxy Pope. To

Professor Bethel, Director of the Natural History Department of the State Museum, and to Miss Schmoll, Curator, acknowledgment is due for much kindly assistance.

Briefly, information was gathered by:

I. **General observation.** Systematic study of the flora of vacant city lots and suburban districts.

2. **Pollen plate stations.** Pollen plates were placed at a number of fixed points in the city and regularly collected and studied

CHART I

CHART OF HAY-FEVER PLANTS

PLANT		TIME OF POLLINATION							
Scientific Name	Common Name	Feb-Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.
<i>Acer saccharinum</i>	Soft Maple	Feb 22. March							
<i>Populus sargentii</i>	Western Cottonwood		+++						
<i>Poa annua</i>	Blue Grass		+++	++++	++++	++++	++++		
<i>Bromus tectorum</i>	Brome Grass			+++	-				
<i>Agropyron smithii</i>	Colo. Blue Stem				+++				
<i>Dactylis glomerata</i>	Orchard Grass			- -	- - - -				
<i>Iva axillaris</i>	Poverty Weed				+++				
<i>Poa pratensis</i>	June Grass				+++	+			
<i>Distichlis striota</i>	Salt Grass				+++	++			
<i>Hordeum nodosum</i>	Wild Barley				++	+			
<i>Atriplex canescens</i>	Bushy Atriplex				++	+			
<i>Stipa comata</i>	Spear Grass				++	-			
<i>Atriplex hastata</i>	Fat Hen					+++			
<i>Atriplex nortensis</i>	Butter-leaves					+++			
<i>Plantago major</i>	Common Plantain					+++			
<i>Amaranthus retroflexus</i>	Beet Root Pigweed				-	++	ooo		
<i>Phleum pratense</i>	Timothy				ooo	+++	- -		
<i>Chaetochloa viridis</i>	Green Fox-tail					+++	++		
<i>Chenopodium album</i>	Lamb's Quarters				ooo	+++	++	ooo	ooo
<i>Amaranthus blitoides</i>	Pigweed					+++	++		
<i>Salsola pestifer</i>	Russian Thistle				-	+++	++	- -	
<i>Ambrosia trifida</i>	Giant Rag-weed					++	+++	ooo	ooo

CHART I CONTINUED

PLANT		TIME OF POLLINATION							
Scientific Name	Common Name	Feb-Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.
<i>Poa compressa</i>	Meadow Grass					+++	+		
<i>Festuca elatior</i>	Fescue Grass					+	++		
<i>Kochia scoparia</i>	Summer Cypress					-	++++	++++	+
<i>Amaranthus graecizans</i>	Tumbleweed					+	++++		
<i>Ambrosia psilostachya</i>	Western Ragweed						+++ ooo	ooo	
<i>Syntherisma aestivum</i>	Crab Grass						+++	+	
<i>Iva xanthifolia</i>	Burweed Marsh Elder						-- ++ o	-- + ooo	
<i>Ambrosia elatior</i>	Short Ragweed					--	++ oo	++ ooo	
<i>Xanthium canadense</i>	Cocklebur					-	++ oo	++ ooo	
<i>Artemisia filifolia</i>	Silvery Sage						++	++	
<i>Franseria acanthicarpa</i>	False Ragweed					-	++	++	-
<i>Acnida tamariscina</i>	Western Water-Hemp					oo	oooo +	++ ooo	ooo
<i>Artemisia gnaphaloides</i>	Prairie Sage						- +	-- +++	--
<i>Artemisia frigida</i>	Pasture Sage					--	+	+++	-
<i>Chrysothamnus graveolens</i>	Rabbit Brush							+++	++

Note:- The plants in the above table are arranged in accordance with the dates of pollination.

Legend:- + equals results of Denver Survey. (Waring)
o equals results of Kansas City Survey. (Duke)
- equals results of Colorado Springs Survey. (Mullin)
Each + etc. equals one week.

to determine the first and last appearance of pollen grains in the air and the dates of greatest abundance.

3. **Lot survey.** Eleven widely separated lots in the city were systematically visited once a week and careful notes made of the occurrence, abundance and flowering period of each plant found.

III. Field Report

The observations of the season 1924 are given in the Chart of Hay-Fever Plants, showing the times of pollination in Denver compared with those in the survey of Duke in Kansas City and those in the survey of Mullin in Colorado Springs.

The Alphabetical List of the Hay-Fever Plants includes only the more important hay-fever plants in this locality. They were selected from a total of one hundred seventy-five different species collected and studied. This list gives brief notes of the occurrence, time of pollination, abundance of pollen and size and shape of the pollen grains.

Alphabetical List of Hay-Fever Plants Collected in Denver, Colorado, During the Summer and Fall of 1924

1. **Acer saccharinum**—Soft Maple. Maple Family. Common in the lawns and parks; small amount of pollen; pollen grains 16 by

28 microns; surface reticulated; shape ellipsoidal. Feb. 22-March 30.

2. **Acnida tamariscina—Western Water-Hemp.** Amaranth Family. Rather common in waste and reverting fields; moderate amount of pollen; pollen grains 25 microns; surface smooth with pores; shape spherical. Aug. 15-Sept. 15.

3. **Agropyron smithii—Colorado Blue Stem.** Grass Family. Rather common in the vacant lots and along the ditches; moderate amount of pollen; pollen grains 35 microns; surface smooth; shape prismatic or the frustrum of a pyramid. June 1-June 25.

4. **Amaranthus blitoides — Pigweed.** Amaranth Family. Very common along the walks and roadways; small amount of pollen; pollen grains 18-20 microns; surface smooth with pores; shape spherical. July 5-Aug. 25.

5. **Amaranthus graecizans—Tumblewood.** Amaranth Family. Rather common in uncultivated soil and newly planted lawns; small amount of pollen; pollen grains 22 microns; surface smooth with pores; shape spherical. July 28-Aug. 30.

6. **Amaranthus retroflexus—Beet Root, Pigweed.** Amaranth Family. Rather common in the waste fields, less common along roadways; small amount of pollen; pollen grains 20 microns; surface smooth; shape spherical. July 1-July 30.

7. **Ambrosia elatior—Short Ragweed.** Ragweed Family. Common along roads and in waste places; moderate amount of pollen; pollen grains 16 microns; surface echinate; shape spherical. Aug. 15-Sept. 10.

8. **Ambrosia psilostachya—Western Ragweed.** Ragweed Family. Common along the roads; moderate amount of pollen; pollen grains 18-22 microns; surface echinate; shape spherical. Aug. 1-Aug. 25.

9. **Ambrosia trifida—Giant Ragweed.** Ragweed Family. Very common along the ditches and in the waste places; moderate amount of pollen; pollen grains 16-18 microns; surface echinate; shape spherical. July 10-Aug. 20.

10. **Artemisia filifolia—Silvery Sage.** Composite Family. Rather common on the bluffs in northeast Denver; moderate

amount of pollen; pollen grains 15 by 18 microns; surface smooth; shape ellipsoidal, three-lobed when viewed from the end. Aug. 15-Sept. 16.

11. **Artemisia frigida—Pasture Sage.** Composite Family. Not very common in Denver, but very common on the foothills near the city; moderate amount of pollen; pollen grains 12 by 18 microns; surface smooth; shape ellipsoidal, three-lobed when viewed from the end. Aug. 25-Sept. 30.

12. **Artemisia gnaphaloides—Prairie Sage.** Composite Family. Found to some extent in the vacant lots and on the prairie surrounding the city; small amount of pollen; pollen grains 12 by 18 microns; surface smooth; shape ellipsoidal, three-lobed when viewed from the end. Aug. 25-Sept. 20.

13. **Atriplex canescens—Bushy Atriplex.** Chenopod Family. Rather common on the bluffs at Barnum and near Inspiration Point, Denver; large amount of pollen; pollen grains 20 microns; surface smooth with pores; shape spherical. June 15-July 10.

14. **Atriplex hastata—Fat Hen.** Chenopod Family. Rather common in alkaline soil; small amount of pollen; pollen grains 22 microns; surface smooth with pores; shape spherical. July 5-July 30.

15. **Atriplex hortensis—Butter-leaves.** Chenopod Family. Common in the waste places, especially in alkaline soil; small amount of pollen; pollen grains 20 microns; surface smooth with pores; shape spherical. July 1-July 30.

16. **Bromus tectorum—Brome Grass.** Grass Family. Very, very common in all of the waste places and vacant lots; small amount of pollen; pollen grains 40 microns; surface smooth; shape prismatic. May 25-June 15.

17. **Chaetochloa viridis—Green Foxtail.** Grass Family. Rather common in all the vacant lots and waste places; small amount of pollen; pollen grains 40 microns; surface smooth; shape prismatic. July 1-Aug. 10.

18. **Chenopodium album—Lamb's Quarters.** Chenopod Family. Very common in all of the vacant lots and waste places in the city; large amount of pollen; pollen grains 20 microns; surface smooth with in-

distinct pores; shape spherical. June 25-Aug. 10.

19. **Chrysothamnus graveolens**—**Rabbit Brush**. Composite Family. Rather common in northwest Denver; moderate amount of pollen; pollen grains 12 by 20 microns; surface echinate; shape ellipsoidal. Sept. 15-Oct. 10.

20. **Dactylis glomerata**—**Orchard Grass**. Grass Family. Rather common in the vacant lots and along ditches; moderate amount of pollen; pollen grains 35 microns; surface smooth; shape prismatic. June 1-June 20.

21. **Distichlis stricta**—**Salt Grass**. Grass Family. Very common around the lakes in Denver, especially in alkaline soil; moderate amount of pollen; pollen grains 30 microns; surface smooth; shape prismatic. June 15-July 15.

22. **Festuca elatior**—**Fescue Grass**. Grass Family. Rather common in Washington Park near the lake and also at Sloan's Lake; small amount of pollen; pollen grains 35 microns; surface smooth; shape prismatic. July 20-Aug. 15.

23. **Franseria acanthicarpa**—**False Ragweed**. Ragweed Family. Rather common in the vacant lots and along the roadways; moderate amount of pollen; pollen grains 16-18 microns; surface echinate; shape spherical. Aug. 20-Sept. 10.

24. **Hordeum nodosum**—**Wild Barley**. Grass Family. Very common in the early spring in the waste places and vacant lots; small amount of pollen; pollen grains 35 microns; surface smooth; shape prismatic. June 5-June 20.

25. **Iva axillaris**—**Poverty Weed**, Marsh Elder. Ragweed Family. Rather common in low dry places; small amount of pollen; pollen grains 20 microns; surface echinate; shape spherical. June 10-July 10.

26. **Iva xanthifolia**—**Burweed Marsh Elder**. Ragweed Family. Very common in the vacant lots and waste places; large amount of pollen; pollen grains 14 by 18 microns; surface echinate; shape ellipsoidal. Aug. 15-Sept. 20.

27. **Kochia scoparia**—**Summer Cypress**. Chenopod Family. Very, very common in

all of the vacant lots and waste places; large amount of pollen; pollen grains 20-24 microns; surface smooth with pores; shape spherical. July 25-Sept. 25.

28. **Phleum pratense**—**Timothy**. Grass Family. Rather common in the vacant lots and along the ditches; moderate amount of pollen; pollen grains 40 microns; surface smooth; shape prismatic. July 1-July 30.

29. **Plantago major**—**Common Plantain**. Plantain Family. Rather common in the lawns and parks; moderate amount of pollen; pollen grains 15 microns; surface smooth; shape spherical. July 5-July 30.

30. **Poa annua**—**Blue Grass**. Grass Family. Very, very common in the lawns and parks in the early spring and summer; small amount of pollen; pollen grains 25 microns; surface smooth; shape prismatic. April 16-Sept. 25.

31. **Poa compressa**—**Meadow Grass**. Grass Family. Common in the vacant lots; small amount of pollen; pollen grains 35 microns; surface smooth; shape prismatic. July 5-Aug. 1.

32. **Poa pratensis**—**June Grass, Kentucky Blue Grass**. Grass Family. Very, very common in the lawns, vacant lots (where it has escaped cultivation) and along the ditches; moderate amount of pollen; pollen grains 30 microns; surface smooth; shape prismatic. June 5-July 1.

33. **Populus sargentii**—**Western Cottonwood**. Willow Family. Many trees along Cherry Creek, Platte River and along the walks and roads; large amount of pollen; pollen grains 15 by 30 microns; surface smooth; shape ellipsoidal. April 1-April 25.

34. **Salsola pestifer**—**Russian Thistle**. Chenopod Family. Very common in waste sandy soil, dry bluffs and in vacant lots; moderate amount of pollen; pollen grains 18 by 20 microns; surface smooth with pores; shape spherical. July 8-Sept. 15.

35. **Stipa comata**—**Spear Grass**. Grass Family. Very common in the vacant lots and along ditches; small amount of pollen; pollen grains 35 microns; surface smooth; shape prismatic. June 15-July 10.

36. **Syntherisma aestivum**—**Crab Grass**. Grass Family. Very, very common in the

lawns and parks (undesirable, kills other grasses); small amount of pollen; pollen grains 40 microns; surface smooth; shape prismatic. Aug. 10-Sept. 15.

37. **Xanthium canadense** — **Cocklebur**. Ragweed Family. Rather common along the roads and in dry places; moderate amount of pollen; pollen grains 20 microns; surface echinate; shape spherical. July 1-Aug. 5.

IV. Conclusions

1. In general, the hay-fever season in Denver (altitude 5,280 feet) is short. Compare the lengths of the flowering times of Ragweed, Lamb's Quarters and Western Water-Hemp in Kansas City and in Denver. Bermuda Grass, the chief cause of the long hay-fever season (April to November) in Texas and Arizona, is not found in Denver.

2. The spring types of hay-fever are not as common as the fall types; the grasses are

less important than the Chenopods, the Ragweeds and the Sages.

3. Excepting the grasses, the most common weeds on Denver vacant lots are Russian Thistle, Summer Cypress, Lamb's Quarters and Burweed Marsh Elder or Horseweed.

4. The Sages are comparatively rare in the city.

5. The pollens of Summer Cypress (*Kochia scoparia*), rare in Colorado Springs in 1922 and Western Water-Hemp, not mentioned in Mullin's survey, are probably important causes of hay-fever in this locality.

6. The pollens of Lamb's Quarters (*Chenopodium album*), Russian Thistle (*Salsola pestifer*), Summer Cypress (*Kochia scoparia*), Giant Ragweed (*Ambrosia trifida*), Horseweed or Careless Weed (*Iva xanthifolia*), Common Ragweed (*Ambrosia elatior*) and False Ragweed (*Franseria acanthicarpa*) were the most frequently found on pollen plates; of these the first four were the most common.

HIGH PROTEIN DIET AND INTESTINAL INFECTION AS ETIOLOGICAL FACTORS IN ARTERIOSCLEROSIS*

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There is a group of diseases, the so-called chronic diseases, which have more to do with the shortening of the life-span and interfering with the enjoyment of the last decades of life than any other group of diseases, even cancer and the other malignant diseases. Such chronic diseases are: Chronic myocarditis, angina pectoris, chronic nephritis, chronic brain lesions (cerebral apoplexies, cerebral thrombosis, chronic hepatitis, etc). These, as their names imply, are considered chronic inflammatory diseases. On closer examination, however, it is obvious that the majority of these conditions have one underlying pathological lesion, and that is arteriosclerosis. Arteriosclerosis

itself has also been considered inflammatory in nature, a sort of end-arteritis. Chronic hepatitis (cirrhosis) is presented in almost all the text books as an inflammatory disease, whereas it includes a complex group of conditions, as far as etiology is considered, in which, according to all probability, inflammation plays only one part and degenerative processes are of greater importance. The question of cirrhosis of the liver is not entered into at this time, but attempt is made by means of pathological analysis of arteriosclerosis, to show the nature of degenerative diseases which in advanced age have been called chronic inflammations, and to clarify the etiology of arteriosclerosis.

The importance of clarifying the ideas in this regard becomes evident on a brief sur-

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vey of some summarizing tables of the "Mortality Statistics" of the United States Bureau of Census for the year 1921. In these one can find startling figures concerning arteriosclerotic conditions in comparison with cancer and other malignant diseases, for example. According to these figures 86 out of 100,000 population died of cancer or other malignant disease. On the other hand, of **heart diseases**, other than acute myocarditis, endocarditis, pericarditis (mostly so-called chronic myocarditis), 140.9 out of a 100,000 population; of **angina pectoris**, 9.1 out of a 100,000 population; of **embolism and thrombosis** (not cerebral), 1.5 out of a 100,000 population; of **arteriosclerosis** (diffuse, generalized), 19.8 out of a 100,000 population; of **cerebral hemorrhage** (after the age of 50), 76.0 out of a 100,000 population; of **chronic nephritis** (after the age of 50), 62.0 out of a 100,000 population; total, **321.3 out of a 100,000 population**.

The analysis of statistical difficulties is, however, obvious—the diagnosis is often vague, and chronic myocarditis, cerebral hemorrhages after the age of 50, chronic nephritis after the age of 50, may not necessarily be due altogether to arteriosclerosis, but may be mixed with it. The plain diagnosis of arteriosclerosis is made only in a generalized condition and never when it affects a single organ more markedly producing a clinical picture referring to that organ.

Old age, senility, is a diagnosis still used as cause of death in a rather surprisingly large figure, whereas one can readily recall the usual postmortem findings of various types of arteriosclerosis seen in these cases (myocardial, cerebral, renal, aortic lesions, etc.).

Scientific investigation as to the nature and etiology of arteriosclerosis has two solid foundations to build on: (1) clinical observation, and (2) pathological anatomical studies.

Any hypothesis formed on these bases is best tested and possibly verified by experimental methods.

Theories concerning the etiology of arteriosclerosis that are purely speculative, are easily formed, very numerous, but are

upset at the start, when applying experimental methods, as for such, definite factors, definite plan and system have to be used with long, patient work and with constant precautions of other possibilities and controls.

In a probably very complex disease as arteriosclerosis one can and has to sort out the various possible factors of primary and secondary importance. No attempt is made in this paper to enter into a discussion of all the possible factors, but only those bearing on the present investigation are considered.

As far as the clinical features of arteriosclerosis are concerned, a few obvious and characteristic features are emphasized. Arteriosclerosis is essentially a disease of advanced age. This means that it is producing marked clinical symptoms and grave conditions in that period of life. Clinically a uniformly, generalized arteriosclerosis is quite uncommon, but more often it favors localization of one organ (heart, kidney, brain, etc.), producing a symptom complex referring to that organ. When such a condition, after long, slow aggravation, comes to observation of the clinicians and later on of the pathologists, the end results of a long process are dealt with, and eventually very advanced pathological lesions found.

When does the disease begin? How long is its duration without and with the obvious clinical symptoms? By what factors is arteriosclerosis started and aggravated? The fact is, that juvenile arteriosclerosis has been described frequently. Pathologists find quite often arteriosclerotic changes as accidental findings in juvenile cases that died of various other causes. It is evident that there are probably many decades when the disease once started is making quite a progress without producing obvious symptoms and thereby avoiding medical observation. Our lacking health observations, as yet, may be also, at least partly, responsible for our ignorance in regard to the early stages of arteriosclerosis. Systematic blood pressure measurements may give some information, but not necessarily, as the high blood pressure (secondary to arteriosclerosis) follows only considerable and diffuse loss of elastic tissue of the vessel walls and is therefore a

sign of a rather advanced stage. What role the high blood pressure may have as primary etiological factor in the production and aggravation of arteriosclerosis, can not be discussed in this paper at length.

From the clinical standpoint arteriosclerosis, as we have seen, has none of the characteristic features of an inflammatory disease: No acute onset or stage, no acute exacerbations, etc. From the standpoint of pathological anatomy we arrive at a conclusion corresponding with the clinical aspect. At no stage of the disease is a definite inflammatory infiltration of real exudative type found. At best there may be present at times a scanty perivascular infiltration, hardly called an inflammatory reaction. The earliest stages of the disease have been traced by Langhans and Thoma beyond the borderline of pathology into the realm of physiology. Definite intima thickenings can be found in the very first decade of life. This thickening of the intima is joined later on by an increase of fibrous and elastic tissue underneath it. Aschoff¹ considered these features sufficient to define the first stage of arteriosclerosis. In the subsequent stages the chief tissue changes consist of further thickening of intima and fatty degeneration of same. This is then followed by fatty degeneration of the connective and elastic tissue layers. As atheromatous changes are the essential features in this process, Marchand² proposed to call the disease more properly atherosclerosis.

From the clinical and pathological standpoints, therefore, arteriosclerosis is a degenerative disease of the vessel walls. These were also the fundamental considerations for the experimental work undertaken, and reported briefly in this paper.

Particularly in arteriosclerosis, animal experimentation has to consider carefully: (1) Whether the lesions produced in animals are identical with the tissue changes found in humans; (2) Whether the result of the factors used is checked up by consistently positive results; (3) Whether the check can also be made by consistently negative results.

No lengthy discussion will be entered into here, in regard to the numerous experiment-

al efforts, that searched for the various etiological factors in production of arteriosclerosis; only the ones bearing on the present work are briefly considered.

One of the first series of experiments in this line was performed by Josue³, who succeeded in producing arteriosclerosis in rabbits by intravenous injections of adrenalin. This experiment started, however, quite a controversy, as it was shown, subsequently, by Monckeberg, that the sclerosis of the media of the vessels, as seen in these rabbits is a separate and definite pathological entity, quite different from the intima lesions of the human arteriosclerosis. Klotz proved later, that the adrenalin has a selective, toxic effect on the muscle tissue of the media of the vessels, producing necrosis and subsequent sclerosis of same.

Then Klotz⁴, in 1906, succeeded in the production of intima lesion in rabbits by intravenous injection of bacteria (typhoid bacilli, also streptococci). Thereby evidence was produced in favor of the important role infection plays in the pathogenesis of arteriosclerosis. Results similar to those of Klotz have been reported as far back as 1889 by Gilbert and Lyon⁵⁻⁶ who produced intima lesion in rabbits by intravenous injections of streptococci isolated from a case of endocarditis. Saltykow more recently, in 1908⁷, repeated these experiments with confirmatory results. Saltykow later, in 1914⁸, reconsidered his own work and paid particular attention to a factor, that he first neglected, i.e., the diet.

The rabbits of his first series of experiments received a considerable amount of milk (100 c. c. daily per rabbit) in their diet in addition to the intravenous injections of staphylococci. Using a pure milk diet (in large amounts of 500 c. c. to a rabbit) Saltykow succeeded in producing as marked atherosclerosis as before with administration of bacteria and milk. Saltykow concluded that the cholesterol contained in the milk is a primary factor in the production of atherosclerosis and that the infection is the contributory factor.

Stuckey in 1912⁹ used a variety of diets as follows:

1. Cow's milk and egg albumen.

2. Cow's milk and meat juice.
3. Cow's milk and egg yolk.
4. Cow's milk and egg albumen plus egg yolk.

As Stuckey obtained the best results with diets containing egg yolk, he concluded that the chief substance of egg yolk, cholesterol, is responsible for atherosclerotic lesions produced.

Availing himself of the conclusions of Saltykow and Stuckey, Chalатов¹⁰ conducted similar experiment with cholesterol itself. Thus the work of experimental atherosclerosis took a definite direction, that is still the subject of extensive investigation, but is still without any decision as to what role cholesterol has in the pathology of atherosclerosis. Further discussion of this problem will not be entered into here. None of these investigations considered the protein as primarily important factor.

The dietary factor alone has been also under investigation. Boyer¹¹ in 1905, Ignatowsky in 1909¹², Steinbiss in 1913¹³ reported results, which, however, were not conclusive. Newburgh and Clarkson in 1923¹⁴ produced definite evidence in favor of the prime importance proteins play in the production of atherosclerosis by feeding rabbits with diets rich in meat. Newburgh and Clarkson used two diets: one with 1,000 grams of powdered beef and 2,000 grams of flour bran, the other with 500 grams of powdered beef and 2,900 grams of flour bran. The first diet contained 36.2 per cent, the second 27 per cent protein. Rabbits on the first diet began to show the intimal changes earlier than the rabbits on the second diet. The extent of the lesion was roughly proportional to the amount and duration of protein feeding.

In the series of experiments reported in this paper, the protein of milk (casein) was used in excessive doses.

In the investigation reported in this paper 35 rabbits were used, 5 of which served as control; the others received a diet rich in the milk protein (casein).

All of the rabbits were young, not over one year, with average weight of 1,200 grams. The diet consisted of 40 grams of

chemically pure casein thoroughly mixed with 100 grams of finely ground, raw carrots. After consumption of their meal the rabbits were given lettuce and bread.

Since January 1, 1924, five of the rabbits were fed additionally with capsules containing Gram positive organisms (streptococcus viridans obtained from a case of endocarditis).

Five animals received capsules containing Gram negative organisms (B. Coli from a case of ulcerative colitis).

Twice daily 200,000 live organisms were given in physiological salt solution.

Within the first month 9 died of exposure and infection (bronchopneumonia and coccidiosis). Twelve of the protein fed rabbits, 3 of the controls, 3 of the streptococcus fed, and 3 of the B. Coli fed rabbits survived 44 weeks, when they were killed and used for the pathological studies. At the end of the experiments the animals were in good condition, averaging 4,500 grams. Their hair was clean and smooth. There was no evidence of infection anywhere in the body.

Pathological examination showed that the rabbits had definite intimal lesions of the aorta after twenty weeks.

As an attempt has been made to keep the animals to the termination of the experiments, no sufficient data are collected as to the gradual changes as time went on.

After the 44 weeks, all the animals showed atherosclerosis of the aorta in varying but marked degree.

The best results were obtained with the combination of high protein diet and feeding with a virulent strain of B. Coli. As rabbit No. 27 showed characteristic lesion for that type, description of it is given here for illustration. (Fig. 1).

Rabbit No. 27 was killed at the end of 44 weeks. (Weight 4,500 grams). Heart showed definite thickening of wall of left ventricle, which averaged 5 mm. in thickness. The leaflets of the aortic valve were rigid and showed irregular yellow patches. The intima surrounding the orifices of the coronary arteries showed soft yellow atheromatous changes narrowing the opening. Yellow, thickened patches and streaks were



Fig. 1. Aorta with heart of rabbit No. 27, marked intima lesion involving valve, orifices of coronary and other arteries.

also found over the intima of the coronary arteries. The leaflets were somewhat adherent. Yellow ridges were running from the ends of the leaflets upwards in the aorta. The atheromatous lesions were at places 10 mm. in length, 6 mm. in width, 2-3 mm. in thickness. They were soft, yellow with smooth surface. Favorite places of atheromatosis were the orifices of the arteries.

Microscopic study showed endothelial hyperplasia of the intima at first. Subsequently, fatty degeneration of this hyperplastic endothelium can be demonstrated very early. Beneath the endothelium, increase of connective and elastic tissue was found.

In more advanced lesions (Fig. 2) the intima thickening was quite considerable.



Fig. 2. Marked hyperplasia of intima of aorta beneath valve and of valve itself. X 65.

The hyperplastic layers of connective and elastic tissue of the media has undergone fatty degeneration similarly to the intima. This atheromatous place showed at places necrosis and ulceration of the surface (Fig. 3).

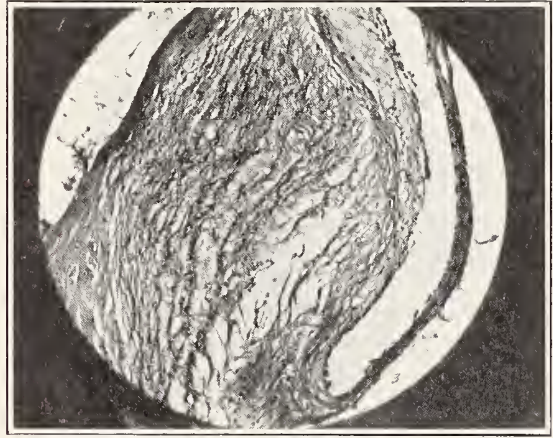


Fig. 3. Marked fatty degeneration of intima of aorta beneath valve and of valve itself. Surface necrosis and ulceration. X 125.

Five control rabbits were kept under the same laboratory condition as the experimental animals. Four survived the experimental period of forty-four weeks. Three of the control animals showed no arterial lesion whatsoever. Definite aortic changes were found in the fourth control rabbit. The wall of the aorta showed irregularly thickened and hardened portions. The valve and adjacent area of the aorta was free. The lesions were irregularly scattered. The distribution of them was entirely different from that found in the protein fed animals. It was also obvious that the intima was smooth everywhere.

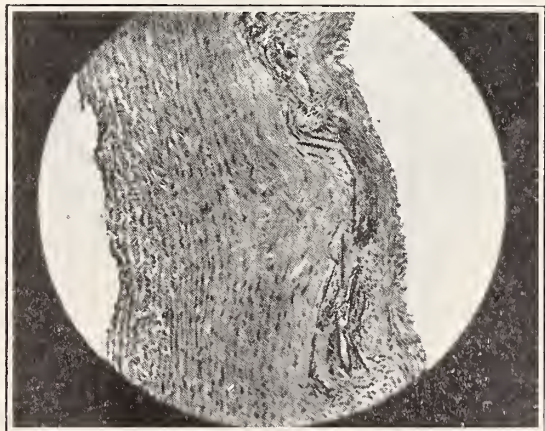


Fig. 4. Calcification of media of aorta in control rabbit. Smooth intima. X 125.

Microscopical examination of this aortic lesion of the control rabbits showed essentially calcification of the media with thin, unaffected intima over its surface. (Fig. 4.)

The spontaneous arteriosclerosis of rabbits is rather rare and is differentiated from the intima lesion, as found in the experiments quite easily. This is evident from the example given above.

Summary

Arteriosclerosis, as known clinically, is a disease of old age. When it is producing obvious symptoms, the pathological changes found are very marked. It is evident that a long, insidious process precedes the clinical recognition. Arteriosclerosis is a general name that includes a variety of conditions as chronic myocarditis, so called chronic interstitial nephritis, angina pectoris, etc., according to the vessels affected.

This process is essentially a slow degeneration of the hyperplastic intima. The fatty degeneration involves secondarily the underlying layer and leads to necrosis and ulceration of the surface. Calcification marks the results of the necrotic process.

In the etiology of the disease there are probably many factors, but in it a prolonged injury plays the chief role.

The experiments reported in this paper show evidence in favor of the injurious effect that the high protein diet has on the intima of the vessels. Infections have been also proven important factors in the production of the disease.

In the experiments attempt was made also to study the effect of intestinal infections. A high protein diet with abnormal proteolysis, as affected by a changed intestinal flora, may result in absorption of toxic proteolytic substances, that are chiefly responsible for the fatty degeneration of the intima.

The most extensive lesions in the experiments were produced by the combination of high protein diet and feeding with a virulent strain of *B. Coli*.

Pure high protein diet without feeding of organisms has also proven effective in the production of atherosclerosis, although less marked in degree. No attempt, was

however, made to study the intestinal flora in these cases.

The combination of pure high protein diet and streptococci produced results which were not obviously different from those fed with pure high protein diet.

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Airplanes are being used to fight locusts in the Philippines.

There are fifty-eight state schools and eighty private schools for mentally defectives in the United States.

London has a municipal clinic where anemic and malnourished children are given "bottled sunshine" treatment by means of ultra-violet rays.

A new instrument based on the interference of light waves has been designed at the U. S. Bureau of Standards to measure the chambers used for counting blood corpuscles.

The soot in London's atmosphere has been reduced 41 percent since 1916 by the use of gas and electric cooking and heating appliances, Dr. J. S. Owens reported to the Royal Society. In Glasgow the reduction for the same period has been about 34 percent.

There are 163 state hospitals for mental disease in the United States.

The Prince of Wales has been elected president of the British Association for the Advancement of Science for next year's meeting, a departure from the usual custom of electing a prominent scientist.

The clinical thermometer was not developed in its present convenient form until 1868.

The American drug trade reached a total volume of \$800,000,000 in 1924.

Nearly 25,000 persons in the United States died by suicide and murder during the past year.

The ancient Egyptians used over 700 different kinds of drugs.

BISMUTH SALICYLATE IN THE TREATMENT OF SYPHILIS

Observations Made in the Female Division of the State and Government Venereal Disease Clinic, Denver, Colorado

S. R. McKELVEY, M.D., U.S.P.H.S., GEO. K. DUNKLEE, M.D. and NOLIE MUMEY, M.D.

Introduction

The early work of French investigators with the many organic compounds of bismuth in the treatment of syphilis stimulated a great deal of interest and has led to the many preparations that are now on the market. However, it is not our aim to deal with these various combinations or to offer them as a substitute for the arsenicals. The scope of this paper as regards treatment will be limited to the salicylate of bismuth, since we believe it plays an important role in those cases that are resistant to the action of mercury and arsenic. Sufficient time has not elapsed to arrive at definite conclusion regarding the final results in patients that have been rendered negative or cured serologically.

History

The researches of Sazerac and Levaditi³ of the Pasteur Institute, from an experimental standpoint, showed that the salts of bismuth injected intramuscularly exerted a spirocheticidal action. The trypanocidal action was worked out by Robert and Santon⁷. Balzer^{8,9} was the first to suggest its use in human syphilis. Fournier and Gennot reported the treatment of 200 patients with the sodium and potassium preparations. Horta and Ganns⁴, Lacahere and Galliot¹³, Grenet, Pronin and Richon¹⁴ and others have been reported on the various colloidal suspensions that have been used intravenously with unfavorable results.

Method of Administration

The method of choice for administration is by intramuscular injection in the gluteal region, although no particular site was chosen by us. We tried various locations and it did not seem to make any difference to the patients (Fig. 1). The amount given is 2 grains of bismuth salicylate every other day. There were a few cases that received daily injections, as will be shown by case reports. Two separate needles are used for the administration, one a large caliber to withdraw the drug into the syringe, preferably a 5 c. c., and then a smaller gauge



Fig. 1. Method of injecting bismuth deep into the gluteal muscles with a 5 cc. syringe, using a 2-inch needle.

needle, No. 21, 2 inches long which is plunged deep into the muscles, thus eliminating the chances of depositing small amounts of the drug in the superficial tissues, which is responsible for pain. (Fig. 2).

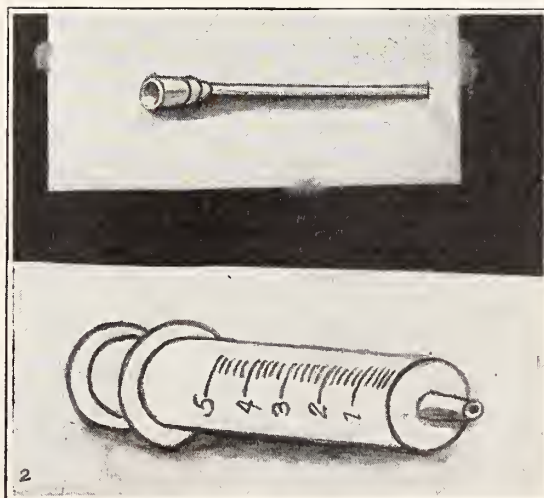


Fig. 2. Needle for withdrawing bismuth from ampule into 5 cc. syringe used for injection of the solution into the buttocks.

Action

Experimental studies show that when the salt is injected in animals it can be found in the kidneys, liver, brain, spleen and

salivary glands. It remains at the site of injection for a long time as has been shown by radiographic studies. Sazerac and Vaur², experimenting on rats and rabbits, showed that the action of bismuth on trypanosomes and spirochetes was due to the phagocytic activity of the leukocytes, converting insoluble into a soluble product. Hopkins²⁴, experimenting with rabbits, found that bismuth gave a higher index than arsphenamine or mercury. His clinical results in 122 courses in patients with positive Wassermans gave a negative in 38 cases, or 31 per cent.

Effects

Numerous writers state that the effect of bismuth is greater on the spirochete than mercury and that the organism is not found in the primary sore following expiration of 24 hours after injection, the lesions healing within four or five days. The secondary manifestations of the disease will disappear rapidly under bismuth treatment. In some of our cases with skin eruptions arsphenamine was resorted to before the lesions disappeared, in other cases daily administration of bismuth caused disappearance of the eruptions after about 8 injections. The gingival blue line will appear after 12 to 24 injections of bismuth and then the blood usually becomes negative. (Fig. 3). Huedlo and Rabut¹⁵ state that the teeth should be cleaned before beginning treatment and state that the drug is contraindicated when the liver function is deficient and the general health bad. Pelo²⁵ believes that the therapeutic use of the drug is indicated in the cutaneous manifestations of the disease. Rorive²², in a report of 11 cases with treatment in two instances because of gingivitis



Fig. 3. Gingival blue line of patient rendered negative with bismuth reported in case reports.

or digestive disturbances, states that when the arsenicals failed, bismuth failed. Bismuth is supposed to have a more marked effect on the meningeal and vascular types than the parenchymatous forms, but precise information on this point is not available.

Absorption

Bismuth is rapidly absorbed from the muscles and is eliminated rather slowly but elimination increases with treatment. The drug, after administration, is found in the spinal fluid within 96 hours, in the saliva within 25 hours and in the urine within 18 hours.

Reactions

The first reaction noted is the gingival blue line which is indistinguishable from that seen in plumbism. It appears at the margin of the gums around the teeth. It is due to the precipitation of bismuth which comes in contact with the hydrogen sulphide of the buccal cavity and forms bismuth sulphide. (Fig 4). In our cases it usually has occurred after the administration of 8 to 12 doses. The deposit may be seen on the buccal mucous membrane (Fig. 4). The gingivitis and foul breath are

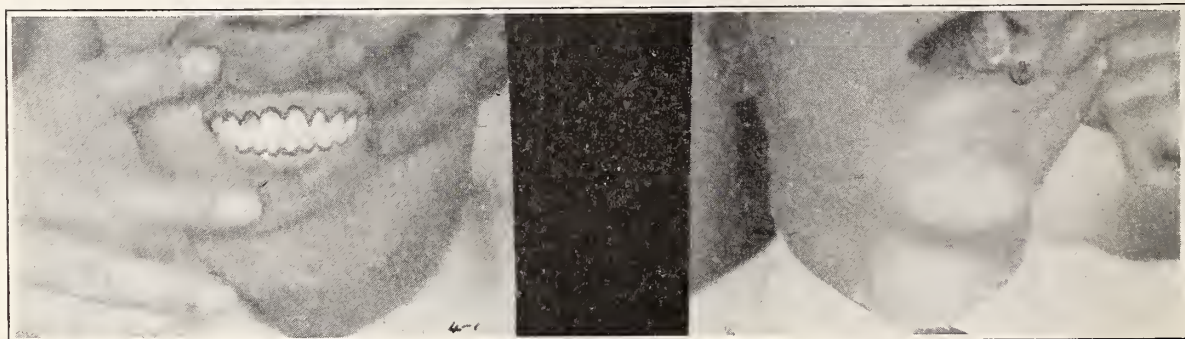


Fig. 4. Deposit of bismuth sulphide around the gingival border of teeth and on the buccal mucous membrane of the same patient.



1: Shows capsule filled with 1 cc. of bismuth salicylate and placed on plate. 2: 1 cc. of bismuth salicylate injected into tissues twenty-four hours before radiogram. 3: 1 cc. injected immediately before picture. 4: Shows remains of first injection twelve days later and is the same as No. 2. 5: Same as No. 3, eleven days after injection. (Plate furnished by courtesy of Drs. Newcomer and Conyers.)

forecasts of a stomatitis and are a warning that a cessation of treatment may be necessary. However, we continued to treat a number of our patients long after the appearance of the blue line with no untoward effects.

Toxicity

No toxic conditions were noticed in our series of cases, although Myers and Corbitt¹, experimenting with rats, found that the drug was poorly tolerated, causing very little action on the trypanosomes and death of the animals in from four to five days. They concluded that the soluble preparations were more readily absorbed but were more toxic.

Case Reports

The case reports are divided into three series: first, the patients presenting themselves with primary lesions, secondary manifestations and the chronic types.

I. C. M., No. 243. A white, married female, aged 20, admitted to the clinic on Feb. 5, 1925, with a history of a sore appearing on the upper lip, after using the roller towel in a restaurant where she was working. It appeared about two months before her admission as a small hard sore which persisted, followed by an eruption over her body. (Fig. 3). She received 8 doses of neoarsphenamine, 5 of mercury, in another clinic. On admission there was evidence of a fading



Fig. 5. Chancre of the upper lip which disappeared under daily administration of bismuth salicylate given intramuscularly.

eruption with a hard indurated sore on the upper lip which was typical of a Hunterian chancre. Blood examination showed a slight inhibition. She received daily injections of

bismuth salicylate. The sore began to disappear after the 12th dose and continued getting smaller until after the 18th dose, when it was hardly visible. She developed a slight stomatitis and complained of pain at the site of injections. She left the city without further observation.

K. D., No. 96. White, married female, aged 31, admitted to the clinic August 1, 1923, with a hard indurated painless sore on the right side of the tongue. Blood Wassermann was 3 plus. (Fig. 6). She was



Fig. 6. Chancre of tongue in patient who received arsenic, mercury and bismuth, reported in case reports.

given 8 doses of 0.6 neoarsphenamine and 17 doses of mercury salicylate with a complete disappearance of the lesion on the tongue. Seven months later the blood Wassermann was negative and she was put on bismuth salicylate and has received a total of 29 doses with a persistently negative Wassermann.

R. M., No. 293. White, single female, aged 21, admitted to the clinic on April 1, 1925, with a papular eruption extending over the arms, legs and trunk, typical of secondary syphilis. Wassermann reaction 4 plus. She gave a history of having had sexual intercourse six weeks before the appearance of the skin manifestations. The treatment consisted of daily injections of I c. c. bismuth salicylate and after the sixth dose the eruption had disappeared from the body with small areas remaining on the legs. After the eighth dose all the lesions had disappeared. She received daily administrations until twenty doses had been given. Very little discomfort. Slight pain and some evidence of stomatitis were observed and at the present time she is receiving three doses weekly.

H. C., No. 258. White, single female, aged 23, admitted to the clinic on March 2, 1925, with a macular eruption over the trunk and upper extremities. There was a hard indurated papular lesion on the right labium majus about 15 mm. in diameter. A blood Wassermann was negative. Case was considered one of lues and she was given daily injections of bismuth salicylate. The eruption began to fade away after the fourth dose and after the eighth dose it had almost disappeared. The sore had disappeared after the tenth dose and the patient then had a slight stomatitis and complained of some pain at the site of injection. She then was given three doses weekly. To date she has received a total of twenty-six doses.

O. H., No. 212. White, single female, aged 19, admitted to clinic on Nov. 19, 1924, with a papular eruption over the trunk and upper extremities. History of sexual intercourse seven weeks before skin lesions. Blood Wassermann 4 plus. She received a total of seven doses of 0.6 neoarsphenamine at weekly intervals, eleven doses of bismuth salicylate at two-day intervals. Blood Wassermann on Jan. 25, two months and six days after treatment, was negative. She received a total of twenty-five doses of bismuth and has remained well until the present time.

M. S., No. 274. White, married female, aged 23, admitted to clinic on March 25, 1925, with a macular eruption over the trunk and upper extremities and mucous patches covering the tonsils and posterior fauces. Blood Wassermann 4 plus. She received daily injections of bismuth and the rash disappeared after the eighth dose had been administered. The Wassermann was still 4 plus after the eleventh dose. She received thirteen doses, administered daily, and developed a stomatitis, was put on a rest and at the present time she is receiving bismuth at two day intervals.

E. L., No. 61,567. White, widow, aged 30, admitted to clinic on Feb. 3, 1924, with ulcer on soft palate on right side of pharynx. Blood Wassermann was 4 plus. She received nine doses of mercury salicylate and ten doses of 0.6 neoarsphenamine, sixteen doses of bismuth at two day inter-

vals. The blood Wassermann was negative one year later. This was followed by ten doses of bismuth, after which blood Wassermann was taken and found negative.

S. S., No. 172. White, married female, aged 27, admitted to the clinic on July 19, 1924, because she gave birth to a syphilitic baby. Her blood was examined and found to be 4 plus. She received six doses of 0.6 neoarsphenamine and 14 doses of bismuth. Six months later her blood was still 4 plus. She then received fourteen more doses of bismuth and six weeks later her blood showed a slight inhibition. This was followed by six more doses of bismuth and her blood was examined and found to be negative. She had a severe stomatitis and has been reporting at weekly intervals. A blue line still persists around the teeth.

L. U., No. 189. White, married female, aged 36, admitted to clinic on Sept. 19, 1924, with a mass on the right leg. Blood Wassermann was 4 plus. She received four doses of 0.6 neoarsphenamine and four doses of mercury salicylate, then six doses of bismuth salicylate. Blood examination two months later was 4 plus. She was then given eleven doses of bismuth salicylate and two doses of mercury salicylate. Two months later Wassermann was 3 plus. She then received eighteen doses of bismuth, following which her blood was negative. She then received thirteen doses of bismuth and her blood came back positive. She continues to receive bismuth at two day intervals. (Fig. 7).

D. S., No. 61,914. White, widow, aged 49, admitted to clinic on March 18, 1924, with chronic ulcers of the legs. Blood Wassermann was 4 plus. She had received previous treatment consisting of thirty doses of mercury. She received nine doses of neoarsphenamine and eleven doses of mercury salicylate. Blood Wassermann was 4 plus. She then received four doses of bismuth and six doses of mercury. Blood Wassermann remained 4 plus. She then received nineteen doses of bismuth and the blood was still 4 plus. She was then given fifteen doses of bismuth and the blood remained 4 plus. She continues to receive bismuth at two day intervals and after having received

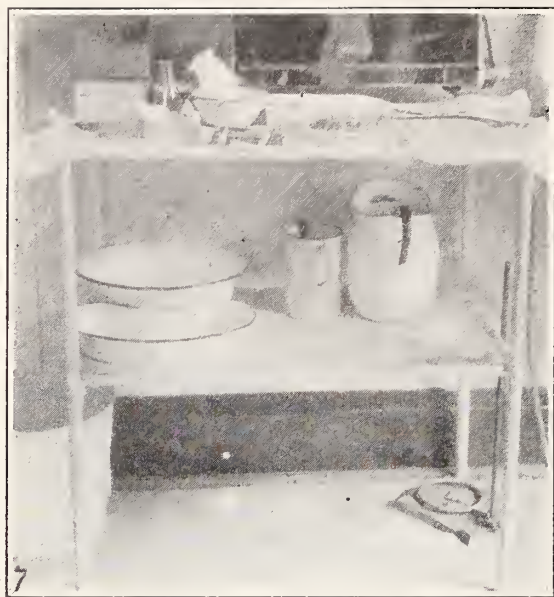


Fig. 7. The view of table set up for giving bismuth where from twenty to forty doses are given in an hour.

a total of thirty-eight doses of bismuth the blood remains strongly positive.

N. B., No. 62,675. White, married female, aged 54, admitted to clinic on April 21, 1924, for insomnia and nocturnal headaches. Blood Wassermann was 4 plus. She gave a history of infection from husband thirty-five years previous to her admission and had received treatment of mercury and potassium iodid. She was given four doses of mercury, six doses of 0.6 neoarsphenamine and six doses of bismuth salicylate and her blood was 4 plus. She then received 4 doses of neoarsphenamine, six doses of bismuth and six doses of mercury. Blood examination 1 plus. She has received twelve more doses of bismuth with no report on blood.

C. H., No. 60,067. White, married female, aged 29, admitted to clinic on Dec. 28, 1923, because her husband had had syphilis and she had had two miscarriages. Her blood

was examined and found 4 plus. After six doses of 0.6 neoarsphenamine and fifteen doses of bismuth the blood Wassermann was negative. She received fourteen more doses of bismuth, but discontinued treatment on account of stomatitis.

D. H., No. 54,355. White, married female, aged 39, admitted to clinic in March, 1923, with history of girdle pains and headaches. She was sent from the neurological service with positive spinal fluid and blood. She received eight doses of 0.6 neoarsphenamine and fifteen doses of mercury salicylate. One year later the blood Wassermann was 4 plus. She then received four doses of silver salvarsan, three doses of neoarsphenamine and eight doses of bismuth. Eight months later she received four doses of silver salvarsan, three doses of mercury salicylate and four doses of bismuth. Blood was then negative. She then received eight doses of bismuth and two doses of mercury, after which the blood still remained negative. She then received twelve doses of bismuth and has had a negative blood report.

C. E., No. 57,998. White, married, female, aged 37, admitted to clinic on Sept. 7, 1923, with headaches and a history of chancre on the labia followed by an eruption fifteen years previous to her admission. She had had treatment, the blood Wassermann was 4 plus. She received three injections of 0.6 neoarsphenamine, thirty-eight doses of mercury and twenty-five doses of bismuth. Following this her blood and spinal fluid were negative and she has received thirty-one more doses of bismuth. (Fig. 8).

Summary

A total of 3,085 injections of bismuth salicylate were given 218 patients, which

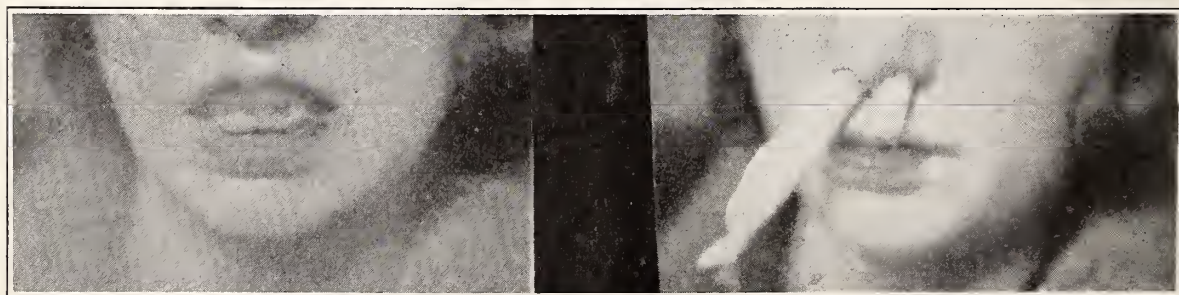


Fig 8. One of the arsenic fast cases that has received 32 doses of bismuth and has the blue line with the 4 plus Wassermann. Gauze pulled through perforation in septum.

would lead us to arrive at the following conclusions:

1. Bismuth is an adjunct in the treatment of syphilis and is above mercury, but below salvarsan in its action.
2. It is better tolerated than mercury.
3. It is less painful than mercury, but causes some discomfort from injection.
4. It is efficient in the so-called Wassermann fast cases.
5. It will clear up primary and secondary manifestations more rapidly than mercury, more slowly than salvarsan.
6. It can be used in patients with marked renal involvement.

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COMMUNITY ORAL HYGIENE

Latest in the series of public health studies to be issued by the New York Association for Improving the Condition of the Poor is "Community Oral Hygiene," being a four-year report of a demonstration which the A. I. C. P. has been conducting in the Mulberry district of New York City. In a foreword to the report, Bailey B. Burratt, General Director of the Association, says:

"Communities are only beginning to awaken to their responsibility of providing a complete preventive dental program for school children. New York City in common with most communities has lagged behind Bridgeport, Boston and Rochester in providing an extensive dental service for school children. In order to promote this important work the A. I. C. P. has undertaken an experiment in an oral hygiene program for the children in the Mulberry district in the hope that the results of this experiment might lead New York City and other communities to provide an adequate dental service for school children on a permanent basis."

CULTS.

In Nebraska a questionnaire was sent to the members of the State Medical Society. The first question was: "What should be the attitude of the medical profession toward the various cults?"

The replies were: "Ignore, 216; compel by law, 11; educate the laity, 30; open antagonism, 29; tolerance, 37; equalize science requirements, 65; doubtful or no answer, 10. The second question was: "Should the State Medical Society engage in propaganda to educate the public?"

The replies were: Yes, 267; no, 89. These replies are quoted to convey the trend of medical opinion in connection with the solution of our problems.—*Journal of the Michigan State Medical Society*.

PREVENTIVE MEDICINE VERSUS PRIVATE PRACTICE

J. A. WENK, M.D.

COLORADO SPRINGS, COLORADO

Medical and lay journals contain increasing numbers of articles in which are mentioned health surveys, standardization of public health work, county health units, full time health officers, and other comparatively recent terms which deal with public health and preventive medicine. We read of the proposed intensive campaign of this or that national organization; we hear of the Mansfield plan and a legion other more or less familiar ideas, all of which are primarily concerned with health education.

However, to many physicians, particularly those of years of practice, these movements all point toward that colossal phobia of the private practitioner—"State Medicine."

A discussion of the financial aspects of medical practice seems beneath the ideals of the profession, but doctors are such notoriously poor business men that no apology is necessary for a consideration of some of the factors which influence their incomes.

The purpose of this paper is to emphasize the value of educational features of preventive measures in contrast with free treatment or correction of defects. The writer believes that no physician is opposed to measures that will keep people well, but this same physician is entitled to a righteous antipathy toward any organization, the activity of which detracts from his practice and income by treatment of the sick.

Sir David Bruce, lecturing in Canada, recently said, "Modern medicine must change its strategy in the battle against disease. It must begin the offensive and not await the attack." A different and somewhat radical viewpoint is presented in the presidential address of Dr. Pusey to the A. M. A., which sounded a warning to the profession and can be read with profit by all interested.

Preventive medicine is not only coming, but has arrived. Any observant physician can find evidence of this fact in his daily practice. We find mothers insisting that their children be breast fed and they bring well children in for periodical physical examination. We see pamphlets on infant care

or the diet of the pre-school child in the homes and learn that the mothers are subscribers to *Hygeia* or *Child Health* or some similar publication. This all constitutes preventive medicine of the type the physician should encourage.

We have clinics of various types which are sponsored or supported by various organizations, whose object it is to furnish medical care to indigent cases. Such clinics do a good work—often too good—as a social service which thoroughly investigates the applicants is costly to maintain, usually inadequate, and the information given such workers is often questionable or actually false; and one sees many cases in these clinics that could pay some fee.

It will always be necessary to maintain such offices as a city or county physician for the totally destitute, but, as a former county officer suggested to me, attendance by such men could be limited to cases that were actually receiving financial aid from the community.

Organizational, private, and municipal clinics have a broad and fine work in the spreading of health education, but the treatment element of such clinics should be minimized. Let us take for example a patient for whom tonsilectomy has been advised as a preventive measure. He should be referred to the family or private physician who is given the opportunity to do the work for a reduced fee or for nothing, if necessary. The point is raised that often this patient will not appreciate the seriousness of such a defect and consequently will fail to go to his own physician. He is hurried to a free operating room and the preventive measure is jammed down his throat, so to speak. Education is here the essential point. This patient should be educated to understand why this correction is necessary and impressed with the importance of operation, but here the activity of the clinic should cease. True, this individual may go through life with a rheumatic history as a result of neglect in the follow-up, but human individuals have been made ex-

amples of unrecognized or unheeded precepts before, and preventive medicine cannot be applied too rigidly in its infancy.

Such a doctrine actually applied would apparently render useless many existent organizations. This should not be necessary. Let us keep and support all the pre-natal clinics that are in operation, all the well baby clinics, all the pre-school child and numerous other similar clinics—so long as they limit their services to examinations and diagnosis and to the dissemination of such advice and literature as is at their disposal.

Such efforts as the pre-school child health conferences being conducted throughout the state under the Sheppard-Towner Act, are deserving of every encouragement from the profession. In the districts chosen for this work, a representative of the Extension Division of the University of Colorado visits the community as a sort of advance agent. His first contact is with the local physicians or physician. If they are unfavorable, no conference is held, but if favorable they are asked to assist at the clinic. An organization of trained workers supplied by a co-ordination of five state agencies and a specialist supplied by the Sheppard-Towner Act then enters the community and examines the children. Health advice is given and physical defects noted, but recommendations for treatment are referred to the physician who has been indicated as the family doctor. As a results, health matters in this community receive a stimulation which is directly reflected in the practice of the local physician.

Colorado presents a huge field for public health work. In the opinion of the foremost authorities the best plan for inaugurating such work is through the creation of county health units. Under this plan each county maintains, or where more feasible two counties combine to maintain, a health unit of such pretension and personnel as the funds available will permit. Treatment by these units should be limited to the purely indigent patients, but health education is fostered and urged for all. These units act as subordinates to a state health officer and in addition to their own efforts, give help

in all health matters or surveys of local or state interest.

The spreading of health education through organizations such as are herein mentioned really constitutes a form of ethical advertising which can be made to produce results in increasing private practice and at the same time exert a tremendous influence as preventive medicine.

Relative to the friction which frequently develops between many of the organizations engaged in health work and that large body of medical men to whom this work is yet new or accepted with reservations, something can be said for both parties. The attitude and personnel of many of these bodies is not so constituted as best to gain the co-operation of the physician who frequently hears from these sources that he is the most difficult of all to educate and if his whole-hearted support is not immediately forthcoming, he is made to feel old-fashioned and unimportant, or worse, ignored entirely. On the other hand, medical men will be wise to appreciate that public health and preventive medicine are based on sound principles and should endeavor to acquaint themselves with the various ramifications of the movements.

Let the medical profession, upon which all such work is primarily dependent, take an active interest in public health and preventive medicine, and when an over-zealous worker, or organization, makes statements or launches plans which seem to lean toward medical monopoly, let us not condemn all individuals or agencies, but rather join the movement and attempt to guide the energy behind them toward an acceptable and profitable goal, in other words—Health Education.

SAVING THE DOCTOR'S BILL

Covetousness is the greatest of Monsters, as well as the Root of all Evil. I have once seen the Man that dyed to save Charges. What! Give Ten Shillings to a Doctor and have an Apothecary's Bill besides, that may come to I know not what! No, not he; Valuing Life less than Twenty Shillings. But indeed such a Man could not well set too low a Price upon himself; who, though he liv'd up to the Chin in Bags, had rather die than find in his Heart to open one of them, to help to save his Life.—William Penn.

THE VALUE OF RADIATION IN DISEASES OF THE CERVICAL LYMPH GLANDS

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The use of radium gamma rays and Roentgen rays has come to play an important part in the treatment of non-malignant as well as malignant adenopathies. I refer particularly to the use of these physical agents in the treatment of chronic pyogenic enlargements, and the granulomata of tuberculosis, Hodgkin's disease and actinomycosis, as well as the leucomas and lymphomas of the various leukaemias, and the primary and metastatic sarcomas of embryonal cell types.

The treatment of these neoplasms, which are made up of relatively undifferentiated cells, retaining embryonic structure, rapidly dividing, and containing much chromatin, constitutes ideal radiation therapy in that a small percentage of the erythema dose of x-ray or radium causes these cells to cease dividing and autolyze, being absorbed with little or no radiation reaction. It is quite different from the treatment of metastatic epidermoid carcinoma, about which I shall devote more time later.

I shall take up the above conditions serially and attempt to give the mode of treatment and the prognosis in a word.

Pyogenic glands and sinuses should be given small doses of well filtered x-ray or radium at intervals of two or three weeks. The so called stimulating doses are not applicable when there are foreign bodies, such as bone sequestra.

Tuberculous glands react favorably to the above treatment, but not so quickly as pyogenic glands. This method is sure and in no case runs the risk of disseminating tubercle bacilli and can be accomplished with practically no rise in temperature or general reaction, even though the glands are broken down. We have a case from whose cervical triangles we aspirated 300 c.c. of pus (180 c.c. left side, 120 c.c. right side) that has been well for over three years, and the glands were just barely palpable at the

last visit. This was accomplished without sinus formation or the slightest scarring.

Hodgkin's disease should be treated from pubes to occiput with well filtered x-rays of the greatest penetration. Series of treatments should be given and repeated upon the slightest evidence of return. Hodgkin's disease is 100 per cent fatal in our experience, but we have seen cases remaining well for two or three years.

Leukaemias: The lymphoid variety should be treated the same as Hodgkin's disease and offers the same fatal prognosis.

In spleno-myelogenous leukaemia we ignore the cervical enlargements and treat the

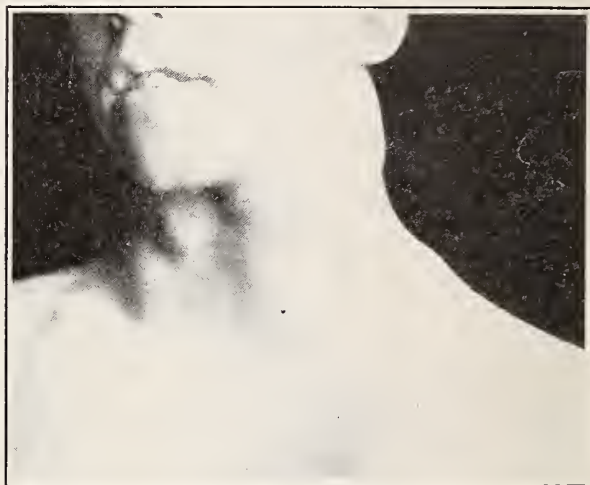


Fig. 1—Hodgkin's Disease. Photo taken March 10, 1924. The circumference of the neck just below the chin measured 18 inches. The lower part of the neck measured 18½ inches. One month later, after giving 50 per cent of an erythema dose of well filtered roentgentherapy, the masses in the neck were not palpable, the mediastinal masses had retrogressed as shown by radiograph, and the upper and lower part of the neck both measured 14½ inches.

mediastinum and chest. The prognosis is immediately good. I have seen a case that has gone just ten years under radium and x-ray alone.

Actinomycosis: This is much more frequently seen than is fully realized and here the treatment by radiation takes second place to intravenous iodides.

Sarcomas: The so-called melanotic sarcoma or carcinoma should not be treated by

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radiation methods except as a pre-operative prophylactic, as this type of growth is radio-resistant.

The same is true of all well differentiated sarcomas such as osteo-, chondro- and fibrosarcomas.

The undifferentiated forms of sarcomas, such as the lymphosarcoma and the small



Fig. II—Carcinoma of lower lip. Metastatic to submaxillary lymph glands, following an unsurgical form of treatment. The lesion of the lip was easily healed by surface applications of radium and roentgentherapy. The proper treatment of cancerous glands involved the use of radium needles implanted throughout the submaxillary triangle.

and large round cell and spindle celled sarcomas, are quite radio-susceptible and the treatment of these constitutes ideal radiation therapy, inasmuch as the retrogression of the growth is accomplished without scarring or intensive radiation sufficient to cause damage to thyroid, thymus, trachea, larynx or salivary glands.

In the treatment of these radio-susceptible sarcomas involving cervical glands or primary above the clavicles, we treat to the costal margin and feel safe in doing so, as these growths frequently retrogress with less than 50 per cent of the erythema skin dose.

The last chapter of my paper had much better be given the title that follows.

The Conservative Treatment of Cervical Lymphatics in Intra-Oral Carcinoma

It would be very interesting and instructive to know what percentage of the glands removed in the routine block dissection of the neck are actually invaded by malignant

cells. Many observers have assumed that all palpable glands draining a malignant area are cancerous. This is not true. Ewing has pointed out that changes in the lymph nodes draining malignant tumors show that the implantation of metastasis is usually preceded by a hyperplasia and it may be months before true metastasis takes place.

Broders of the Mayo Clinic has reported a series of 516 lip cases in which block dissection of the neck was done in 449 or 87 per cent. Of this number it was only possible to show that the glands were definitely malignant in 105 or 25 per cent. In other words, 344 patients or 74 per cent (allowing for some failure to demonstrate metastasis) were operated unnecessarily. Lip cancer is undoubtedly the most favorable of the intra-oral group for surgical treatment or radiation treatment, and the average results show about 70 per cent of the patients well after five years.

The tongue, on the other hand, is probably the most difficult to deal with, as



Fig. III—Radiograph showing the position of the radium needles implanted throughout the submaxillary triangle of the patient shown in Figure II.

The needles were withdrawn from the depths of the neck by the wires which are clearly shown in the radiograph.

shown by the fact that only 11.6 per cent of a series of 584 cases were well after three years following the radical block dissection (Bastianelli) and he did not find a single case of carcinoma of the base of tongue well for three years, even though a

bilateral operation on the neck had been performed.

It would seem, therefore, that if a blanket rule for block dissections of the neck is to be applied to every case that can stand it or will permit it, an appalling number of



Fig. IV—Carcinoma of the helix of the ear metastatic to the superior cervical lymph glands. The mass was tightly adherent to the angle of the mandible and the carotid sheath.

Radium needles threaded on wires were implanted deeply about the area of induration as shown in the photo, and in the accompanying radiograph; see Figure V.

unnecessary operations must be undertaken, many of them offering but a poor chance for the patient at best.

Ewing has noted that embolic cancer cells may be destroyed in the nodes under some circumstances and that, for the most part, the lymph nodes appear to filter the malignant cells from the lymph stream and to retard growth rather than destroy cells. Evidences of retardation of growth in the nodes by fibrosis and encapsulation are common knowledge. In the early stage the lymph glands hold the disease in check, within their capsules, for a longer or shorter time. It is rare that an entire chain of glands is involved until late in the disease or after traumatic interference. This

is well demonstrated by the fact that of all epidermoid carcinomas arising above the clavicles only 2 per cent showed metastasis within the mediastinum at autopsy.

This is one of the chief clinical differences between the metastasizing properties of epidermoid carcinoma and glandular types of carcinoma such as that of the breast.

I believe that we are now fairly well agreed that cancer cells metastasize by the propagation of malignant emboli along the lymphatics, and it then must follow that the removal of the lymphatic glands of the superficial and deep triangles of the neck diverts the lymph stream and malignant emboli to the more deeply placed glands, the pre-vertebral chain, until the more superficial lymph return circulation is re-established. The mode of dissemination is then a factor in favor of conservatism.

This is amply borne out in Broders' figures of 516 lip cases in which not a single patient with involvement of more than one group of glands recovered following block dissection. It would seem therefore that the adoption of a radical dissection as a blanket rule is a frantic rather than a scientific effort, borne out by the natural his-



Fig. V.—Radiograph to show the position of radium needles as implanted in the cancerous glands shown in Figure IV.

The fogging of the plate is due to the radiation from the radium while arranging the patient to take the x-ray. This gives a good idea of the area of intense radiation.

tory of the disease toward preventing its extension.

In our work, we make use of intensive doses of radium implanted into and about malignant glands either in the form of tiny

glass spicules of emanation or metallic needles. We also attempt to give all gland bearing areas 100 per cent of an epilating dose of well filtered Roentgen rays at 200,000 volts.

In cases having no palpable glands this has been done for the purpose of stimulating the protective defenses in the lymphatics, and destroying minute metastatic foci at a time when they are most susceptible.

Radiation, in the form of Roentgen or gamma rays, tends to block lymphatic channels through its effect on the endothelial

cells. And on the gland itself the effect is to produce a marked cellular reaction which tends to incarcerate vagrant cancer cells. Thus the natural barriers to cancer dissemination are strengthened, rather than removed, under proper radiation therapy.

From external radiation alone, however, whether by radium or x-rays, we have never seen fully developed epidermoid carcinoma destroyed in the cervical glands. The actual destruction is only brought about by the judicious use of implanted radium in addition to external radiation.

THE PSYCHONEUROSES AND THE PROFESSION

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The neurotic, alias hypochondriac, psychasthenic, hysteric or psychopath and those suffering from varicus phobias and obsessions constitute the large group of psychoneurotics. They are constantly found in the offices of every medical man from the neurologist down to the proctologist. Their omnipresence as well as their eternal complaints cause us to assume toward them an entirely unwarranted attitude. We usually treat them as step-children, so as speak, as if they do not belong to the domain of medicine. Yet they are really sick people.

Neurotics or psychoneurotics are individuals who either inherit or acquire an inferiority, and are unable successfully to combat the adversities of life. They lack the strength and endurance necessary to carry them through the battles of life. As long as they are protected from undue stress or strain, as long as they are not required to do anything beyond ordinary routine, they get on well enough. But should adverse circumstances, grave responsibility, disappointment or financial reverses become their lot, a neurosis will invariably result in many cases.

A definition of what is meant by a neurosis is in place. However when one attempts to do this, one finds that he is "up against it." It is easy to define an inkwell, a box, a square or a circle. It is easy to grasp what is meant by pneumonia, tuberculosis or a fractured hip. It is quite

different when it comes to defining a neurosis, psychasthenia or a psychopath. The reason is that in the latter we are dealing with complicated psychologic and psychopathologic reactions of so many different intensities.

To define a neurosis, one is compelled to lead up to it in a somewhat round-about way and drag in that most dangerous word, consciousness. For the moment we shall conceive of a neurosis so far as its relation to consciousness is concerned as that of a protective or defensive mechanism. A slight elaboration will make this point clear.

The growing intricacies of man's environment, the intricacies of man's inter-relation, the struggle to adjust oneself to surroundings and environment which might be distasteful or even unbearable, calls for a defense mechanism, a mechanism different and even more efficient than the one involved in combating a tuberculous, pneumonic or diphtheritic infection. A psychic mechanism or defense becomes imperative. It is here where consciousness comes into play. For it is consciousness that screens the individual, protects and barricades him by the utilization of many factors. It is this screen, this psychic defense, which under certain circumstances and in certain individuals presents itself as a disease entity called a neurosis.

A neurosis, then, may be defined as an instinctive, protective reaction of conscious-

ness which arises out of the real or fancied need of an individual in response to his failure to successfully adapt himself to his environment. A neurosis is never destructive to the individual. It always attempts to save rather than destroy its possessor.

The types which the neurosis assumes in the protective scheme are many and extremely rich in contents. It will depend upon the individual's make-up, the sum total of his inheritance, environment and the nature, kind and severity of the immediate conflict which is responsible for the neurosis.

The neuroses and psychoneuroses are of much interest to the profession because they so closely mimic physical disease. Sir William Osler says that one of the psychoneuroses, hysteria, has always to be differentiated from brain tumor, typhoid fever, multiple sclerosis, tuberculous meningitis and many other serious disorders. He who has never mistaken hysteria for a grave organic disease and vice versa is indeed but little short of omniscient.

Commonly these inadequately innervated and morbidly introspective individuals unconsciously shift the responsibility to some bodily trouble. Often, only too often, the physician accepts the patient's view of his physical condition.

Mrs. C., is irritable emotional and and morbidly introspective. She had to contend with a mother-in-law complex, a husband complex and many other adversities. Physically this condition was expressed by insomnia, backache, indigestion, abdominal pain and headaches. Sending her to California, I considered the least of evils. There she started right, for by the time she got back to Denver, her past history was enriched by a tonsillectomy, an appendectomy, a cervical repair and a fourth operation for breaking up adhesions. Here she suddenly became violently ill, complaining of excruciating and unbearable headaches, extreme restlessness and insomnia. Three of our leading internists were subsequently called in. Dr. A. said she would never get over this until she is operated again for something abnormal he found in the pelvis. Dr. L. thought she possibly

had hyperthyroidism. He recommended a basal metabolism test and added that there must be something back of her condition. Dr. V. thought there was nothing the matter with her. An oculist and otolaryngologist could find nothing pathologic in their respective specialties.

In this case, the immediate cause of the neurosis, for such it was, was due to the following little circumstance. Dr. C. gave her some atropin drops for her eyes. Deliberately or otherwise, she took a great many more than she was told to and decided that she was poisoned. The police surgeon was summoned, accompanied by a police reporter. The latter made a nice little suicide story out of it. For reasons known only to the reporter, he described her beautiful residence as a little dwelling place in the rear on X-street, where the woman was found alone, deserted and so forth. The publicity, the misrepresentation of the incident, the sympathy from friends and the neighborly gossip combined was more than she could stand. Some avenue of escape from the situation was imperative to be found, and it was found in the birth of the neurosis just described.

You doubtless have heard the definition of the spine as given by a student in the physiology class—viz: "It is a column of bones in the back. Your head sits on one end of it and you sit on the other." In the case just described the trouble was at the upper end of the spinal column, in that of the father-in-law at its opposite extremity. Distant are these two parts one from the other and different indeed, their physiological function, but when, in the case of a neurotic, something in either case goes amiss, the result is a neurosis.

The second case is also very instructive. Mr. J. is fifty-two years of age. For the last year he was unable to work because of extreme nervousness, restlessness, insomnia, indigestion and inability to apply himself to anything which requires the least of either mental or physical effort. He has been and is being treated presently for all kinds of troubles. This neurosis is chiefly due to the following circumstance. At the age of forty-five years, he married for the first time,

a woman twenty-three years his junior. Soon after the Lord blessed him with a child. A similar bestowal came upon him eighteen months later. For the first time in his forty-eight years of existence he had to face life and its adversities in a manner unknown to him heretofore. He tried to combat it the best way he knew how but he failed. His next attempt instead of being of a more determined nature, as it would have been in a normal individual, was weaker. He faced life with the indetermination of the weakling, the coward, the misfit. The natural sequence of such an attitude was another disaster. By this time he felt that it was no use to battle any longer. He gave up. But personal honor, pride and public opinion made a complete retirement from life impossible. Something had to be done, some avenue of escape was imperative to be found. It certainly wasn't his fault that he failed in everything he undertook. (It always is the other fellow's fault.) To blame society entirely for his failure wasn't the best way out of it either. Torn in his struggle and indecision of what he should do, what he ought to do and what he feared to do, an insomnia came to his rescue. Next he thought the teeth in his mouth felt too large. Then his tonsils began to trouble him and indigestion became a constant symptom. He was relieved of his teeth, tonsils and liberally supplied with all sorts of medicines for "nervousness."

His complaint was accepted at face value. His teeth, tonsils and stomach were treated but the real causative agent was entirely ignored. And now he is constantly mourning the loss of his teeth and tonsils, "which simply tore his nerves to pieces."

The cases just cited are typical of the majority of the psychoneuroses. They all have one thing in common, namely, the inability to cope with adverse circumstances and the **subconscious** shifting of this inability to some bodily ailment. I underline the words subconscious, for the psychoneurotic is not conscious of what is taking place. It is this that differentiates him from the malingerer, who deliberates, plots and schemes all the time. The psychoneurotic is outwitted by the conscious. To him the suffering

is real and he is in constant search for a way out of it. It is the neurotic who was responsible for the performance of elitorodectomy, oophrectomy, turbinectomy, the cutting of the eye muscles and many other deceased therapeutic measures. Likewise the fate of the colonic stasis, dental infection, rest cure, occupational therapy and the newly-born allergic reaction will depend largely on the part played by the omnipresent neurotic.

In spite of all that this type of patient is willing to undergo, we usually tell him "nothing is the matter," "just a nervous breakdown," or accept his symptoms as realities and treat them accordingly.

Such a mode of procedure is indeed a great deal easier than to work out the frequently present obscure and complicated psychopathologic condition. It is however unjust, unscientific, and leaves the patient in a state of confusion and decomposed emotions.

There is another point about the neurotic which is of much importance to the profession and which is worthy of dwelling upon. He, with his eternal troubles and endless complaint. He who does not sense it or see with the changing attitude of many laymen towards us. He has a lot to do with much of the medical unrest, hidden and open, inside as well as outside the profession. The fact is, medical practice is falling off. "Things are sort of slow" is the universal complaint. He, who does not sense it or see the rarefaction in most of our reception rooms has either a cataract on the colcarine fissure or else deliberately closes his eyes to the situation. At the same time the cults are gaining and their clientele increasing enormously.

The followers of the cults do not consist of the overly credulous or the non-thinking element, as we so often tell ourselves. The cults have among their ranks some of the most distinguished citizens of the country.

A music teacher by the name of Alexander wrote a book entitled, "Man's Supreme Inheritance." In it he claims that he "discovered" a system whereby he induces a natural and internal massage of the entire system which breaks up "toxic accumulation"—I am quoting verbatim—thus pre-

venting evils arising from auto-intoxication. By this method he has cured paralysis, varicosity, tuberculosis, asthma, adhesions of the lungs, congenital and other malformations. I am mentioning this quack's book because it was John Dewey, one of the world's most distinguished educators and professor of philosophy in Columbia University, who wrote a laudatory preface to it. One could mention many such instances.

We shall cite only one more from history. The essay on "The Virtues of Tar Water" for twenty-three different afflictions had for a time almost as many editions as *Hiawatha* and *The Christmas Carol* combined.

The author of "The Virtues of Tar Water" was not a quack, to be sure. He was one of England's most distinguished scholars, Bishop Berkeley, he certainly was not in the advertising game. Neither is John Dewey or J. N. Robinson, professor of history of Columbia University and another follower of the cults. Equally true it is that Tar Water has not cured even one of the twenty-three organic diseases, as its brilliant author so earnestly believed that it would. Nor has the internal massage of Mr. Alexander broken up adhesions or cured malformations. What did happen however, was that the neurotic patients with their close mimicry to organic disease, did so impress the distinguished gentlemen mentioned

with their sufferings and their cures, that no amount of logic would persuade them that they had no organic disease. This conviction was, undoubtedly, strengthened by some doctor's diagnosis "just a nervous breakdown" or "nothing the matter."

To recapitulate then: A neurosis is a protective mechanism of the psychic make-up of an inadequately innervated individual. It is an immunologic mechanism, just as important and has just as sound a theoretical basis as the existence of the receptors, ambocaptors, hexophors and toxophors in Ehrlich's side chain theory. Failure on our part to understand the neurotic leads to a sort of anti-biosis of profession and patient and the end products being disastrous results.

A deeper realization on our part that there is something the matter with the neurotics and psychoneurotics, even though we cannot demonstrate it clinically or find it in the test tube skiagram and microscope; an attitude on the part of us toward him as to any other patient, will not only relieve a considerable portion of humanity from a lot of misery, but it will also pave the way to a deeper knowledge and a truly scientific interpretation of the mechanism of the neuroses. Last, but not least, it will go far in restoring the confidence of the public in the profession, as it justly deserves.

THE MEDICAL MANAGEMENT OF GALLBLADDER DISEASES

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The management of gallbladder disease by medical methods has been the subject of intense enthusiasm on the part of many, and of criticism on the part of others. A great deal of investigation has been carried out by numerous workers in this field, and a great deal of data is now becoming available.

Before treating these cases, it is of course necessary to arrive at the proper diagnosis, using the usual diagnostic methods, which it is not within the scope of this paper to discuss in detail.

Usually the patient suffering from a chronic cholecystitis, has, in addition to the

local manifestations of his gallbladder pathology, one or more of the following symptoms: belching, bloating, nausea or vomiting, regurgitation of food, and heart-burn. Physical examination reveals signs of local pathology, such as tender liver edge; Boas' tender point, and often marked tenderness on the Murphy maneuver.

Roentgenological examination is often of great value, and its interpretation gives a valuable clue in the proper management of the patient. It assists in excluding carcinoma, diagnosing stones, cardiospasm, etc. Recently cholecystography for purposes of diagnosing gallbladder diseases has re-

ceived considerable attention at the hands of many workers. Sodium tetraiodophenolphthalein or tetrabromphenolphthalein is injected intravenously and Roentgen-ray shadows of the gallbladder obtained.

The two great factors in the production of gallbladder disease are:

1. Biliary stasis.
2. Biliary infection.

Myer of the Hooper Foundation of San Francisco has shown that the gallbladder walls share with the liver the remarkable property of removing bacteria from the blood stream. It is, therefore, necessary that proper cognizance of these factors be taken in the management of the gallbladder patient. Focal infection, infection from the intestinal tract, sedentary occupation, tight lacing, etc., are matters which must be corrected.

For the purposes of treatment we divide our cases into those with, and those without stone. The cases of infected gallbladders, may, aside from the usual classification of acute and chronic, be divided into:

1. The early or mild cases.
2. The patient with signs of gallbladder disease, in addition to such concomitant conditions as nervousness, symptoms of the menopause, myocarditis, etc.
3. Those who are poor surgical risks because of associated complications.
4. The good surgical risks.

As for the cases with stone, very little is to be said, as these are usually the cases which require surgical intervention. Suffice to say that the medical management of these cases resolves itself into the care of the patient during his gallstone colic, when the usual treatment of rest, heat locally, opiates, adrenalin, etc., is used.

Before instituting any sort of treatment, our patients are given the usual physical and laboratory examinations, and in most instances are referred for radiographic observation. All patients are given a thorough gastric analysis. In our work we use the fractional method of examination, first examining the contents of the fasting stomach, and then fractionally after a test meal of toast and water. The stomach contents are aspirated at frequent intervals extending

over a period of about two hours in the average case, and endeavoring to get as homogeneous a mixture as possible. The acid titre, both free hydrochloric acid and the total acidity, are obtained and the curve plotted. Blood, bile, starch digestion, etc., are studied. These findings are invaluable in the proper management of the gallbladder victim, both as regards diagnosis and treatment. Such abnormalities as achylia gastrica, hyperchlorhydria, delayed gastric emptying, etc., are treated as the findings warrant. The accompanying reflex dyspepsia of these patients demand attention, and in fact these are often the principal symptoms which these patients complain of. Diet is of untold value in treatment, but each case must be studied unto itself. We no longer place all cases on a rigid fat free diet, but depend much on our examination of our gastric contents, and the idiosyncracies of the patient. In regard to drugs, we use some form of intestinal antiseptic. We like acriflavine in enteric coated tablets. Carlsbad salts, the various bile salts in combination with salicylates, etc., are employed.

We have used the Lyons-Meltzer method in a fairly large series of cases, and a review of our findings and the results obtained are such as to make us enthusiastic about the method in certain selected types of cases. In 1917, Meltzer first demonstrated the action of magnesium sulphate on the sphincter of the common duct. He demonstrated by experimental work on dogs, that if the drug is introduced into the stomach, it loses its action as a biliary stimulant; but if introduced directly into the first portion of the duodenum, it causes a relaxation of the sphincter of the common duct (Odis sphincter) and also produces a contraction of the gallbladder. This was the basis for the work of Vincent Lyon, who has employed the method in thousands of cases with excellent results. The method is used for purposes of both diagnosis and treatment.

The patient is instructed to report (on a fasting stomach) early in the morning. The Einhorn tube, with Einhorn tip having its terminal hole closed, is used, and the tube is introduced into the stomach, using a wire

stylette for ease of introduction. The patient then lies on his right side, with the hips slightly elevated, and is instructed to swallow the tube very slowly, it taking at least thirty minutes to reach the duodenal mark. As soon as we are certain that the tube has passed through the pylorus and into the duodenum, we make an injection of from thirty to fifty c.c. of 33 1/3 per cent volumetric solution of magnesium sulphate to relax Odis sphincter. We endeavor to aspirate back from 70 to 80 per cent of this solution, as otherwise the patient may complain of diarrhoea from the saline. Ten minutes later, or as soon as the bile starts to flow freely, a second injection is made. We endeavor to collect the bile into its three portions, which are described as A, B and C biles—the A bile being common duct bile, the B, gallbladder bile, and C, liver bile. The A bile—from 10 to 20 c. c.—is obtained in 1 to 3 minutes, the B or dark bile—from 30 to 90 c. c.—and then the C or light yellow bile. In the various biles we study quantity, color, transparency, viscosity, manner of discharge, blood, pus, bacteria, crystals, mucus, inflammatory debris, sand, reaction, etc. This observation is very valuable in prognosis, and in determining the progress of the case and the number of drainages necessary. After this seance, the patient is given a duodenal flushing, and then the stomach is washed out; after which the patient is given a cup of tea and toast and allowed to go home.

Our drainages teach us several important things, and if we observe carefully, we often receive very valuable clues.

1. Failure after repeated attempts indicates occlusion of the common duct.

2. Repeated failure to obtain B bile indicates an organic condition interfering with the function of the gallbladder.

3. Fine sand suggests stone.

4. Pus or numerous bacteria indicates active infection.

5. Shaggyish irregular discharge suggests stasis.

The type of cases in which we advise drainage by this method are:

1. The early cases of gallbladder disease—catarrhal or infectious.

2. In biliary atony.

3. Certain cases of chronic cholecystitis which have contraindications to surgical interference.

4. To reduce the toxemia before operation.

5. Post-surgically after cholecystectomy for drainage of remaining residual infection in the liver and bile ducts.

Removal by this method is a factor in preventing the reabsorption of infected bile through the portal circulation. If, in spite of the measures outlined, there is evidence of increasing infection of the biliary passages, we must consider surgical intervention.

Matsuo and Shibota have demonstrated the finding of typhoid organisms in the B bile in post typhoid cases. They have observed in patients whose abdomens have been opened on the operating table, with the tube in situ, the method employed, have actually seen the expanded gallbladder become small and empty, while the B bile has been drained through the tube. Tada and Nahashima have injected a dye, Azorubin, into the gallbladder, and noticed the ejection, by the action of the salt, of this dye, and have absolutely proven that the red stained bile recovered must have been the contents of the gallbladder, and of no other organ.

In an experience with a fairly large series of cases, I believe this method of definite clinical value in properly selected types of cases. I do not consider it of value where there is such an obstruction of the cystic duct that the gallbladder cannot be made to discharge its contents, giving the B bile after several attempts. It cannot take the place of surgery in cases of advanced gross pathology of the gallbladder, such as empyema, stones and pericholecystic adhesions. Many cases, if treated early by this method, can be so cleared up as to prevent future surgical interference. So-called cases of bilious headache are often entirely cleared up, and in cases of acute catarrhal jaundice the results are almost miraculous. By this method the patients are certainly no worse off than previously, and no untoward effects have been noticed in any of our cases.

SYSTOLE

He who looks back, falls forward.—Yugoslav Proverb.

Now is now—Ynle's i' the winter.—Scotch Proverb.

The universe is a thought from God.—German Proverb.

True knowledge is to know how little can be known.—Sand.

What is easily gotten is nearly lost.—Yugoslav Proverb.

Reprove thy friend privately; commend him publicly.—Solon.

Skill is doing the right thing the first time.—W. P. McKenzie.

Example is always more efficacious than precept.—Samuel Johnson.

When the ass bears a light load, he wants to lie down.—Russian Proverb.

He who causes a thing to be done is the real doer of it.—Sanskrit Proverb.

Discontent is the want of self-reliance; it is infirmity of will.—Ralph Waldo Emerson.

Our greatest glory is not in never falling, but in rising every time we fall.—Goldsmith.

Don't try to carry the world on your shoulders. No one expects it of you.—Proverb of West Africa.

The only people, scientific or other, who never make mistakes, are those who do nothing.—Thomas Huxley.

If you have no enemies, you are apt to be in the same predicament in regard to friends.—Elbert Hubbard.

DIASTOLE

"Did the tailor receipt the bill when you paid for the repairs?"

"No. He said he had reseated the pants."

"I can see specks before my eyes."

"Well, take your spees off."

Fish can smell, says a German scientist. Well, for that matter, so can eggs.

Nowadays when a child goes to stay with grandma, it is hard to tell whether mama is going to have a new baby or a new husband.

"What on earth has happened to Johnson's head?"

"Oh, his barber couldn't change a dollar and had to give him two haircuts."

Two for Five: "They say he is a cheap-skate."

"Why, he's so cheap that the telephone company gave him the number 245."

Customer: "Why do you call that thing an emergency flask?"

Storekeeper: "You can slip it into your pocket if you see an officer coming."

Little Bernice, aged 4, has much dignity, which she upholds when occasion demands. The other day she was seeing her uncle off and went on board to look at the Pullman. Her uncle said: "This is the first time you've ever been in a train, isn't it?" She replied: "Yes, uncle, but I've been on the outside of lots of them."

In the northern latitude of England, where the summer evenings are long, and where daylight saving makes them longer, children sometimes do not see the dark at this time of year. A story is told of a little fellow who was awakened in the middle of the night when his father turned on the light. As the parent was about to turn it off again, the little lad exclaimed, "Oh, please, daddy, don't turn on the dark."

NEWS NOTES

Dr. William C. Finnoff recently left Denver for a visit of several months in Europe.

The following physicians attended the American Congress of Physicians and Surgeons in Washington: S. Fosdick Jones, Henry Sewall, C. E. Edson, Leonard Freeman.

Dr. Robert Levy has been elected second vice president of the American Laryngological, Rhinological and Otological Society.

Dr. Hugh Taylor of Denver is recovering from his recent operation.

Dr. Harry Champlin has sailed for Europe, where he will spend a few months.

Dr. Otto Prien is ill at Mercy Hospital, Denver.

Dr. C. B. Ingraham of Denver has returned from a trip to Washington and other eastern cities.

Dr. W. H. Crisp recently gave an illustrated address to members of the Colorado Mountain Club, his subject being "Glimpses of Europe by Automobile."

Dr. N. A. Thompson has returned to Denver from a trip to the South.

Dr. F. E. Wallace of Pueblo visited the Mayo clinic in April.

Dr. O. M. Gilbert of Boulder has joined the Post-Graduate Assembly and Tour of Canada, the British Isles and France.

Dr. Melville Black has returned to Denver from his recent Mediterranean cruise.

MAGAZINE ARTICLES

THE DOCTOR LOOKS AT BIOGRAPHY. By Dr. Joseph Collins, Bookman, May.

CHIROPRACTIC. By Morris Fishbein, American Mercury, May.

ASIA'S STRUGGLE AGAINST OPIUM. By H. G. Alexander, Contemporary Review, April.

BETTER HEALTH CLUBS FOR WOMEN. By Fielding H. Yost, Delineator, June.

SPIRITUAL HEALING. By the Bishop of Durham, Hibbert Journal, April.

THE DOCTOR AS ARCHITECT. By Woods Hutchinson, M. D., Saturday Evening Post, May 16.

WHAT THE DUCTLESS GLANDS ARE. By Dr. Llewellys F. Barker, Delineator, June.

YOUR CHILDREN'S EYES. By Harry S. Reynolds, M. D., Good Housekeeping, May.

EVOLUTION AND THE FINALITY OF THE CHRISTIAN RELIGION. By G. Galloway, D. D., Hibbert Journal, April.

ERNEST HAROLD BAYNES. By Frederic A. Lucas, Natural History, March-April.

THE DANGER OF IGNORANCE (on the part of Anti-Vaccinationists). Outlook, May 13.

KEEPING THE RURAL NURSE RURAL. By George T. Palmer, Survey, May 15.

CONQUERING SCARLET FEVER. By Ives Hendrick, World's Work, May.

THOMAS HUNLEY. Century, May.

DR. LEO H. BAEKELAND, HUMANIST. World's Work, May.

BOOKS FOR REVIEW

CLINICAL MEDICINE FOR NURSES. By Paul H. Ringer, M.D., Second Revised Edition. Philadelphia: F. A. Davis Company.

BLAKISTON'S COMPENDS. A COMPEND OF GENITO-URINARY DISEASES AND SYPHILIS. by Charles S. Hirsch M.D. Fourth Edition, Revised. Philadelphia: P. Blakiston's Son and Company.

FEEDING, DIET AND THE GENERAL CARE OF CHILDREN. By Albert J. Bell, M.D. Philadelphia: F. A. Davis Company.

PRINCIPLES OF SURGERY FOR NURSES. By M. S. Woolf, M.A., B. Sc., M.R.C.S. Philadelphia and London: W. B. Saunders Company.

PSEUDO-APPENDICITIS. By Thierry De Martel and Edouard Antoine. Translated by James A. Evans, M.D. Philadelphia: F. A. Davis Company.

THE SURGICAL CLINICS OF NORTH AMERICA. December, 1924. Volume IV, Number 6. Lahey Clinic Number. Philadelphia and London: W. B. Saunders Company.

THE MEDICAL CLINICS OF NORTH AMERICA. January, 1925. Volume VIII. Number 4. Mayo Clinic Number. Philadelphia and London: W. B. Saunders Company.

THE TECHNIC OF LOCAL ANESTHESIA. By Arthur E. Hertzler, A.M., M.D., Ph.D., L.I.D., F.A.C.S. Third Edition. St. Louis: The C. V. Mosby Company.

THE SURGICAL CLINICS OF NORTH AMERICA. February, 1925. Volume V. Number 1. New York Number. Philadelphia and London: W. B. Saunders Company.

PEDIATRICS. Edited by Isaac A. Abt, M.D. Volume VI. Philadelphia and London: W. B. Saunders Company.

GYNECOLOGY. OBSTETRICS. THE PRACTICAL MEDICINE SERIES. Edited by Charles L. Mix, A.M., M.D. Volume V. Series 1924. Chicago: The Year Book Publishers.

RECOVERY RECORD. For use in Tuberculosis. By Gerald B. Webb, M.D.: Paul Hoeber, Inc., New York.

MEDICAL AND SURGICAL REPORT OF THE ROOSEVELT HOSPITAL. Second Series, 1925. Based on the work of 1915-1924, inclusive. Editorial Board. Kirby Dwight, M.D., Chairman: Paul Hoeber, Inc., New York.

CLINICAL FEATURES OF HEART DISEASE. An Interpretation of the Mechanics of Diagnosis for Practitioners. By Leroy Crummer, M.D. Introduction by Emanuel Libman, M.D.: Paul Hoeber, Inc., New York.

A COMPEND OF GYNECOLOGY. By William Hughes Wells, M.D. Fifth Edition. Revised and enlarged by William Benson Harper, M.D.: P. Blakiston's Son and Company, Philadelphia.

DISEASES OF CHILDREN FOR NURSES. Fifth Edition. By Robert S. McCombs, M.D.: W. B. Saunders Company, 1925. Philadelphia and London.

DIET IN HEALTH AND DISEASE. By Julius Friedenwald, M.D. Sixth Edition.: W. B. Saunders Company, Philadelphia and London.

PERSONAL HYGIENE APPLIED. By Jesse Feiring Williams, M.D. Second Edition revised: W. B. Saunders Company, Philadelphia and London.

DOCTOR OLIVER LYONS

Doctor Oliver Lyons was born February 28, 1875, at Ironton, Ohio, and died April 30, 1925.

When still a child his parents moved to Hume, Illinois, and it was here in the country, like many successful men, that he spent his boyhood and received his preliminary education. After graduating at the Kentucky School of Medicine at Louisville in 1898, he engaged in general practice for a short time and then took a post-graduate course in New York. At this time his health failed and he was forced to come to Denver, Colorado, where he was engaged in the practice of genito-urinary work for twenty-five years. During this period he gained the highest honors that can come to one in his profession. While never strong, he gave unsparingly of his time and energy to the teaching of students at the University of Colorado and took active part in the various medical societies. His writings were never profuse, and yet his last paper, "One Hundred Cases of Prostatectomy," in which he reported one hundred cases without a fatality, indicated his real value in the practice of his specialty. The outstanding feature of his work was his unusual clinical judgment and his fearless adherence to the correct practice of medicine. This quality of his personality was often felt by his associates and had a great deal to do with the directing of the professional careers of others. He was a member of the American Urological Society, the American Genito-urinary Society, the American College of Surgeons, and the American Medical Association.

His war record was quite brilliant. Entering the army early in 1918 as a captain, he rapidly rose to the rank of major in charge of Base Section 3 as a consulting urologist. He received his discharge from the army in February, 1919. He took an active interest at all times in things pertaining to his government and state and always tried to aid in their betterment. He gave many years of service to Denver's General Hospital and to the Department of Health and Charity.

By his death it may truly be said that the community has lost a great physician and a good citizen; his associates, a loyal friend.

W. WALTER WASSON.

SUGGESTIONS TO AUTHORS

In submitting manuscripts to Colorado Medicine, authors are requested to comply with the following suggestions:

1. Typewrite your manuscript in double or triple space—never single space. Leave ample margins to right and left.
2. Write on whole sheets of paper—not half sheets.
3. Write your name on every sheet.
4. Furnish your top copy—not a carbon, which will smear with handling.
5. Avoid abbreviations, such as sod. bicarb., the Dr., P. S. P. test, R. Kidney, L. K., Sec'y., Assn., %, etc.
6. Follow standard form in bibliographies and references, observing the following details:

Give the author's initials or Christian name as well as his surname. Follow with a colon (:) and then with the name of the book or article.

In the case of a book, give the edition, unless the edition referred to is the first. Give the

page referred to. Follow with the place and year of publication, and the name of the publisher.

In the case of an article, follow the title with the name of the journal. If abbreviations are employed, use those approved by the American Medical Association. (See "Suggestions to Medical Authors and A. M. A. Style Book," supplied by the American Medical Association, 535 North Dearborn Street, Chicago, at a cost of twenty-five cents, or lent without charge by Colorado Medicine). Follow the name of the journal with the year of publication, and then with the volume and page number.

Follow the general form given below:

1. Lovett, Robert W.: The Treatment of Infantile Paralysis. Second edition, page 78. Philadelphia, 1917. P. Blakiston's Son & Co.
2. Timme, Walter; Lectures on Endocrinology, pp. 48-62. New York, 1924. Paul B. Hoeber, Inc.
3. Favill, John and Charles F. Rannick: A Case of Family Periodic Paralysis, Archives of Neurology and Psychiatry, 1924, vol. 11, p. 674.
4. Joslin, Elliott P.: Diabetic Problems of Today, Jour. Am. Med. Assn., 1924, vol. 83, p. 727.

CONFERENCE ON SOCIAL WORK

A cordial invitation is extended to members of the medical profession in Colorado to attend the sessions of the National Conference of Social Work which is to be held in Denver, June 10th to 17th. The health program offers much that will be of interest, especially to men in the tuberculosis field, children's work and public health.

In one of the section meetings, New Developments in Contagious Disease Control will be discussed and the Smallpox Problem in the Western States. Some of the speakers who have been selected are: Dr. Mazuck Ravenel, Columbia, Missouri; Dr. W. S. Rankin, Raleigh, North Carolina; Dr. William H. Park, New York; Dr. Arthur H. Flickvein, Houston, Texas; Dr. Bernard Glueck, and Dr. Frankwood E. Williams, New York.

The meetings of the health division will be held at Unity church, 19th and Broadway. Detailed information regarding the program may be secured from the Community Chest office, 14th and Welton streets.

ELLA CYRENE BAKKE, Secretary,
Denver Publicity Committee National Conference
of Social Work.

WANTADS

Office space in Metropolitan Building, no equipment necessary. Apply Box 1, COLORADO MEDICINE, 509 Imperial Building, Denver.

Wanted: Sober, industrious, capable specialist to head Eye, Ear, Nose and Throat Department. Excellent opportunity. Please give all particulars and photograph in first letter. Hot Springs Clinic, Hot Springs, So. Dak.

FOR SALE—Complete set Osler's Modern Medicine and other Medical Books; good condition. May be seen at 419 Quincy Building. H. S. Lynn.

For Sale \$8,000 cash practice, \$3,000 contracts. No competition. Residence, x-ray, and equipment \$4,000; \$2,500 cash to handle. Colorado Medicine, Box 1.

MEDICAL SOCIETIES

DELTA COUNTY

The regular meeting of **The Delta County Medical Society** was held at Hotchkiss Friday, April 24th. Dinner was served at the Hotchkiss Hotel and the scientific program was at the residence of Dr. Copeland. The members present were Dr. Hick, presiding, Drs. Cleland, Smith, Copeland, Hazlett, Lewis, Meyers, Day, Bast, J. H. Burgin and McArthur.

The minutes of the previous meeting were read and adopted. Communications were read. Dr. Bast gave a paper on Vincent's Angina, followed by report of cases and discussion by Smith, Cleland, Day, Hazlett and McArthur. Dr. Lewis read a paper on Diabetes, which was discussed by Bast, Day, Hazlett, Hick, Smith and McArthur.

It was moved and carried that the article on Abram's Electronic Diagnosis and Treatment in the Scientific American be published in the local papers.

The next meeting will be in Paonia in May, paper by Burgin, "Physiotherapy;" by Hazlett, selected.

HARRY A. SMITH, Secretary.

COLORADO GENERAL HOSPITAL

During the past two months there has been a steady growth in the number of patients admitted to this institution. The following report from the office of the superintendent of the hospital will show the increase month by month. The figures given in the April number of Colorado Medicine was for a period of two and a half months. The increasing number of counties represented by the patients in the hospital is also of interest because it shows that more of the state is taking advantage of the opportunities presented in the institution.

March and April.

Number of counties represented..... 33
Number of patients received in hospital.....255

During the same period of time the Colorado Psychopathic Hospital reports that they have received a total of 87 patients distributed among 17 counties throughout the state.

Independent of the above figures are those submitted by the Out-Patients Department which shows a marked increase in spite of the predictions that the locality was not suited for such purpose. During April a daily average of 103 attended the clinics of which 23 were new patients, which shows a steady growth. Figures are not available for the Out-Patients Neuro-Psychiatric Clinic which has just started.

Mr. George A. Collins, superintendent, has offered his resignation to take effect May 15. At the present time no successor has been appointed to take the position when Mr. Collins leaves.

Dr. Hugo Mella will assume his duties as Associate Director of the Colorado Psychopathic Hospital on May 15.

Hostess: "May we serve you to another helping?"

Mrs. Malaprop: "Why, I believe you may. That food seems very nutritious. It fairly teems with pantomimes."—Christian Register.

BOOK REVIEWS

Abt's Pediatrics. By 150 specialists. Edited by Isaac A. Abt., M.D., Professor of Diseases of Children, Northwestern University Medical School, Chicago. Set complete in eight octavo volumes totalling 8,000 pages with 1,500 illustrations, and separate Index Volume free. Volume V containing 865 pages with 373 illustrations. Philadelphia and London: W. B. Saunders Company, 1924. Cloth, \$10.00 per volume. Sold by Subscription.

Twenty-four authors have contributed the 29 chapters on diseases of the face and jaws, orthopedic surgery, tuberculosis, hereditary syphilis, infectious disease and infection and immunity. The chapters on orthopedic surgery occupy about five hundred pages, well illustrated, a formidable text book on orthopedics. The chapter on the care and treatment of healthy and painful feet is of especial value to the pediatrician. The chapter on tuberculosis, written by Sauer and the chapter on hereditary syphilis by Veeder and Jeans, furnish complete and valuable material to any student of these diseases.

The volume contains 373 illustrations.

R. P. FORBES.

Life Insurance Examination. Edited by Frank W. Foxworthy, Ph. B., M. D., formerly chairman medical section, American Life Convention, president of the American Association of Medical Examiners, chief surgeon Indiana National Guard, major and surgeon U. S. V.; at present of staff Methodist Episcopal and City Hospitals. Associate editor "Medical Insurance." For many years a medical director, a medical referee, and a medical examiner. The C. V. Mosby Co., St. Louis, 1924. Price \$9.00.

There are only a very few publications on the subject of life insurance examinations, notwithstanding the fact that a vast majority of the medical profession is engaged to a greater or less extent in making physical examinations for life insurance companies.

This publication is a most excellent work on physical diagnosis, and in addition contains information which is absolutely essential to the making of proper insurance examinations.

The particular attention of life insurance examiners is called to Chapters 6, on Organization of Medical Department; 9, on The Medical Examiner; 21, on Blood Pressure and How to Take It; 29, on Urinalysis; 45, on Fraud.

Each chapter is written by an expert in his line.
CUTHBERT POWELL.

Operative Surgery. By Alfred T. Bazin, D. S. O., M. D., Assistant Professor of Surgery and Clinical Surgery, McGill University. Assisted by F. A. C. Scrimger, V. C. B. A., M. D.; F. J. Tees, M. C. B. A., M. D.; I. McL. Tompson, B. Sc., M. B., Ch. B. (Edin.) of the Departments of Surgery and Anatomy, McGill University, Montreal. Renouf Publishing Co., 1923. Price \$2.50. A very valuable little book for both instructor and undergraduate student of operative surgery.

It is a guide not only to the actual operations for each day; but also, by virtue of its simplicity, stimulates collateral reading, that is so necessary but so frequently neglected by the student.

The usual operations are well covered without waste of time or without waste of material.

The anatomical charts so conspicuous in the first part of the book would greatly enhance the usefulness if continued throughout the book.

A few simple illustrations would likewise add much, without danger of making the book bulky.

C. F. HEGNER.

Clinical Medicine for Nurses. By Paul H. Ringer, A. B., M. D. Chief of Medical Service of the Asheville Mission Hospital, Asheville, N. C.; on the staff of Biltmore Hospital, Biltmore, N. C. Illustrated. Second Revised Edition. F. A. Davis Company, Publishers. Philadelphia. Price \$2.50.

A work excellently planned and written, but of doubtful utility. The author, obviously a well trained and well read clinician of large experience, has apparently lost his sense of values, and written from the standpoint of a clinician rather than the standpoint of a Superintendent of Nurses.

The work places the author in the middle of the Rubicon where he catches it from both sides. It goes too far for the undergraduate and does not go far enough for an ambitious and conscientious nurse. As a text book the structure is too heavy for the foundation on which it is to be placed and as an advanced text book it offers only half-knowledge.

The author, keeping himself within the assumed limitations of the trained nurse, has set forth, under symptomatology, the subjective symptoms of the various diseases without the objective symptoms; and since the advent of William Osler the subjective symptoms have been notorious for their deceptiveness. This fact so evident to a clinician of Dr. Ringer's training, is lost on the bewildered and overworked nurse and may lead her, honestly but ignorantly, to doubt the diagnosis of the attending physician. Further—the diagnosis of a case is of no more interest to a nurse than the cultivation of rubber trees is to a surgeon. It appears that the style of writing adopted by Isabel Hampton Robb is more suitable to the requirements of a trained nurse.

MATTHEW HOWARD AMES.

The Surgical Clinics of North America. Portland-Seattle Number, October, 1924. Volume 4, Number 5. Paper, \$12.00. Cloth, \$16.00 net. Philadelphia and London. W. B. Saunders Company.

The Portland-Seattle number of the Surgical Clinics of North America is a very enjoyable number. Including a wide variety of cases and presented in a pleasing manner, these clinics are of exceptional interest and value.

A. E. Rockey presents cases of appendicitis, demonstrating his operation and post-operative care. The Rockey transverse incision with the post-operative lateral position apparently gives a drainage in abscess cases more direct than in any other method. He has used this transverse incision in thousands of cases and thinks it should be the routine approach for appendectomy.

J. T. Mason gives some neck operations. He has some uses for skin clips, wire retractors, and adhesive tape that are out of the ordinary and worth knowing.

A typical toxic goitre is the subject of a very interesting clinic by J. E. Else. He emphasizes particularly the pathology, differential diagnosis and operative indication in the various types of goitre.

G. W. Swift gives a method of ventriculography by intraspinal injection that avoids many of the dangers and difficulties of the direct transcerebral injection, and apparently gives good results.

He also discusses the differential diagnosis of these ventriculographs.

C. W. Sharples' article shows a thorough study of the bone deformities of rickets. Peacock has a good clinic in genito-urinary surgery. E. O. Jones finds certain indications for the post-operative injections of large amounts of glucose solution with insulin. There are several other clinics of equal merit for those in certain branches, which are well worth perusal.

G. B. PACKARD, JR.

The Science and Art of Anesthesia. By Colonel William Webster, D.S.O., M.D., C.M. Professor of Anesthesiology, University of Manitoba Medical School; Chief Anesthetist, Winnipeg General Hospital; Formerly Professor of Practical Pharmacology, University of Manitoba Medical School; Demonstrator of Practical Physiology and Chemical Physiology, University of Manitoba; Pathologist, Winnipeg General Hospital, Winnipeg, Canada. 214 Pages, Illustrated. The C. V. Mosby Company, St. Louis, 1924. Price, \$4.75.

This book is written in concise form for the medical student and the physician in general practice. Although an excellent guide, it is not intended to displace the more extensive works. Beginning with the history of the discovery of anesthetic agents, it considers the physiology and then dwells on the different agents used and by what methods. After selection of a competent anesthetist, choice of the anesthetic agent and the proper method of administration is shown to be very important. A chapter on "The patient's viewpoint" is most important and reminds us that what is a daily routine to us is strange and unfamiliar to the patient at this critical period.

A record of anesthetics is urged for future reference, so that a large series of cases may be available for the compilation of statistics. Also it advises examination of the patient by the anesthetist both before and after operation.

Under the medico-legal aspect of anesthesia, legislation is sought to define clearly the relative responsibility of the physician and surgeon in the event of any accident from the anesthetic during the operation. "The anesthetist should hold a medical degree, be required to have the requisite knowledge of his art, and be held solely responsible for any fatality that may arise in its exercise."

ROBERT L. CHARLES.

A Manual of Diseases of the Nose, Throat and Ear. By E. B. Gleason, M. D., Professor of Otology in the Medico-Chirurgical College Graduate School, University of Pennsylvania. Fifth Edition, thoroughly revised. 12mo of 660 pages, 212 illustrations. Philadelphia and London: W. B. Saunders Company, 1924. Cloth, \$4.00 net.

This small manual designed primarily to supply students and general practitioners with the essentials of rhinology, laryngology and otology, in a concise form, adequately fulfills its mission.

The fifth edition has been increased by forty-four pages. The addition of new material is well chosen, especially in the diagnosis and treatment of diseases of the ear. This subject covers over one-half of the material in the book.

The revision of this book should mention such subjects as tonsillotomy and paraffin prostheses, only to condemn them and not give explicit details for their performance.

The author is to be commended for condensing such a wealth of material in so few pages.

A. J. ARGALL.

The Medical Clinics of North America. (Issued serially, one number every other month.) Volume XIII. Number 1, July, 1924. By Internists of New York City. Octavo of 426 pages with 106 illustrations. Per Clinic year (July, 1924 to May, 1925.) Paper \$12.00 net. Cloth \$16.00 net. Philadelphia and London. W. B. Saunders Company.

This number is by many well-known medical men of New York City, (Mosenthal, Boas, Draper, Kantor, Shapiro, etc.) It contains approximately the following: Gastro-intestinal clinics (6); Neurological, (7); Respiratory and Heart, (7), and others on Cancer, Syphilis, Pyelitis, Diabetes, Obesity, etc.

Foster, (p. 5) gives an analysis of 3,000 gastro-intestinal cases of which 660 proved to be functional, due to psycho-neuroses. In obesity, Donaldson concludes that it is usually a waste of time to try a reduction in a stupid, obstinate patient.

Kennedy's article on fits is interesting, though treated in rather a bizarre way. Freedman has a fine article on insular sclerosis, but concludes that the etiology has not been definitely established.

Harlow Brooks, (p. 11) decides that: x-ray diagnosis of chronic appendicitis has been very unsatisfactory either in a positive or negative way.

Anomalous membranes (Harris' Bands) fixing the duodenum, is discussed by Niles, illustrative cases are given and the x-ray is given the credit for establishing the diagnosis.

Cecil mentions the work of Vedder and Sawyer with chlorin gas; enthusiasts might well read the article in a late journal A. M. A. on this subject.

This number has not been very carefully proof-read (see p. 203) but contains a lot of fine articles, up-to-date, and very readable.

JAMES T. ELLIOTT.

Developmental Anatomy. A Text Book and Laboratory Manual of Embryology. By Leslie B. Arey, Prof. of Anatomy at the Northwestern University Medical School, Chicago. Octavo volume of 433 pages, with 419 illustrations, many in color. Philadelphia and London: W. B. Saunders Company, 1924. Cloth, \$5.50 net.

Developmental Anatomy by Arey is of particular value as a textbook of Embryology because of a new arrangement of material. It is also a great improvement over other textbooks of embryology in respect to clearness of thought and descriptions. As any teacher of embryology knows, the subject is difficult to teach at best. The material in Arey's new book is arranged in a natural fashion which makes it easier for the students to grasp and thus simplifies the teachers' problems to a considerable extent.

The illustrations and diagrams in the text are excellent and easy of interpretation. However it would seem that they might be supplemented by additional stereograms similar to those used by Kingsley and others. Such stereograms would be of particular value in connection with the formation of foetal membranes and in the development of the urogenital system. Additional figures of the type indicated would eliminate the necessity of making numerous temporary models of the development of foetal membranes and the urogenital system before classes in the course of the lecture hours. The saving of time is of particular importance in a course of embryology.

The table showing the origin of the different structures of the body from the germinal layers is incomplete and indefinite in places. A more extensive table in which the double origin of certain structures and organs could be shown would be of value. For example the principal part of the digestive canal is both endodermal and mesodermal in its final development instead of being merely endodermal. In a similar fashion the complete origin of certain other structures and organs should be shown. Such a table when complete would add to the clearness of the text and make it much easier for the student to visualize the development of individual structures and particularly to understand the relationships between the several parts of the body.

On the whole the book is a great improvement over other textbooks of embryology. It is of particular value to the medical student. It is the judgment of the writer that those teachers who are using Developmental Anatomy are highly pleased with the book and consider it a real step in advance in the presentation of the subject of embryology.

O. C. BRADBURY (Ph.D.).

Fractures and Dislocations. Immediate Management, After-care and convalescent treatment with special reference to the conservation and restoration of function. By Philip D. Wilson, A.B., M.D., F.A.C.S. Instructor in Orthopaedic Surgery, Harvard Medical School and William A. Cochrane, M.B., Ch.B., F.R.C.S. Edin. University Tutor in Clinical Surgery, University of Edinburgh. 978 Illustrations. Philadelphia and London: J. B. Lippincott Company. Price, \$10.00.

This work represents the knowledge gained in the treatment of fractures and dislocations during the World War and from the authors' experience on a special fracture service of a large hospital.

The first chapter deals with general principles underlying fracture treatment, emphasizing the functional viewpoint. In the next two chapters are then discussed splinting, x-ray examinations, compound fractures, debridement, etc. In the following chapters the various anatomical regions are taken up in order and the treatment of injuries peculiar to the part is discussed in detail. At the beginning of each of these chapters is an anatomical study of the part discussed, well illustrated to show muscle attachments and other important structures.

The book is essentially practical and all of the principles that are laid down have been thoroughly studied and tried out by the authors. Due importance is given to debridement, the Thomas splint, skeletal traction, overhead suspension, roentgenographic control, and other methods of hospital treatment of fractures and dislocations. The authors, however, have realized that the great majority of such injuries must be treated by general practitioners, not in the well equipped hospitals, but in the office or home. In this work therefore they attempt to show how, notwithstanding the lack of suitable facilities, the same standard of treatment and the same quality of results as obtained in the hospitals can be and should be expected from the general practitioner.

The book is profusely illustrated with excellent photographs and roentgenographic reproductions, the great majority of which are from cases treated at the clinic of the authors. This book can well be considered a valuable addition to the literature on skeletal injuries.

ATHA THOMAS.

From Infancy to Childhood. The child from two to six years. By Richard M. Smith, M.D., Assistant Professor of Child Hygiene, Harvard University Associate Physician, Children's Hospital Visiting Physician, Infants Hospital, Boston: The Atlantic Monthly Press. Boston. Price, \$1.25.

In spite of the rather plutocratic appeal made at certain points, Dr. Smith's book is full of helpful, practical advice adapted to the use of mothers in the simplest homes.

The author's interests are definitely along prophylactic lines and he is especially fortunate in the way he handles the subject of mental training.

The chapter on Sickness is the least satisfactory. He gives adequate reasons for the advice he offers, and stresses throughout the book the importance of this period of life.

Every mother should find help here, or at least, sound reason for the instruction her own physician may have given but been too busy to elucidate.

ELSIE SEELYE PRATT.

A Text Book of Pathology. By William G. MacCallum, M. D., Professor of Pathology and Bacteriology. John Hopkins University, Third edition, thoroughly revised. Octavo volume of 1162 pages with 575 original illustrations. Philadelphia and London: W. B. Saunders Company, 1924. Cloth, \$10.00 net.

The author needs no introduction into the field of medicine, for his work has stood among the best since the original publication to the present edition.

The volume in fifty-seven chapters, covers pathology from the disturbances of body fluids to gross abnormal conditions with the newer ideas of rickets. A comprehensive study of diabetes with some of the basic principles of metabolism are concisely written in a very readable manner. The entire book is one of interest and is easy to read. The index and chapter arrangements make it a valuable reference monograph for the practitioner, and an important book for the student.

NOLIE MUMEY.

Practical Lectures. Delivered under the Auspices of the Medical Society of the County of Kings, Brooklyn, New York. 1923-1924 Series, 484 pages, 132 illustrations and 3 color plates. Paul B. Hoeber, Inc., New York. 1925. Price \$5.50.

To Frank D. Jennings, president of the Medical Society of the County of Kings is given the credit for inspiring the giving of lectures before the medical profession of Brooklyn. The lectures were given to celebrate the one hundredth anniversary of the society.

The lectures cover practically the whole field of medicine and surgery. The articles are written by men of the highest standing who are giving their personal opinions of the subjects discussed in a practical, straight forward manner.

Some of the more important articles are The Surgical Abdomen by Joseph Blake, Surgical Diagnosis by John B. Deaver and Standley P. Reimann. Rational Pathology and the New Therapeutics by James Wing, Subacute Bacterial Endocarditis in the Active and Healing Stages by Emanuel Libman, Renal Function in Clinical Medicine by Herman Mosenthal.

The book contains 471 pages. It is liberally illustrated and contains many diagrams that are very useful for office reference. The arrangement of the articles is not above criticism. Instead of arranging them according to the field covered they

are arranged in a haphazard fashion which does not invite frequent reference to the volume.

A volume of this character is a fine index of the character of the society's medical men. The officers of the society and the publishers both showed a fine spirit in bringing this volume before the medical fraternity.

ARNOLD S. TAUSSIG.

A CHIROPRACTIC ADJUSTMENT

The following is a newspaper man's impression of a chiropractic adjustment, written in a personal letter to a friend. The description may not be technically accurate, but it is, at least, sportive and entertaining:

"This is fine weather we are having," she remarked, as she watered my spine with a teakettle of boiling water. "I hope this doesn't scald you," she added.

"Oh, I don't mind," replied my voice casually from a hole in the table into which she had thrust my head, "just so the skin doesn't come off."

"Are you troubled much with your stomach?" she asked as she pounded a recalcitrant vertebra with a sledge hammer.

"Yes, my stomach gives me quite a bit of trouble," was my answer, and I wondered if those were my hands or hers that I saw down at the end of the table.

She ran a mason's line along my back and chipped off a piece of bone that wasn't quite true.

She drove a tack into one of the vertebrae of my neck and hung a plumb line from it. "You will probably be sore for several days," she warned me, and she meditatively braided my arms and legs together like the strands of a rawhide whip.

Just then I noticed that my chin was resting on the back of my neck and I looking down at my heels. She straightened me out by turning my body around until it was square with my head.

"Does this hurt?" she asked, and her curiosity was almost plaintive as she folded me over until my heels kicked the back of my head.

"No, that's fun," I smiled back after I had discovered my mouth. "Makes me feel as though I were dancing the Maxixe or the tree-toad minuet."

"But I wanted it to hurt," she explained, patiently, and she did it again.

Then she tied a couple of bow-knots in my legs, made a running noose of my arms and neck, and nonchalantly and sangfroidly lassoed the chandelier with me.

She walked out of the room, remarking, "This is only the beginning. Come tomorrow and I'll give you a real treatment."

DOCTOR'S TROUBLES

A colleague has furnished Colorado Medicine with a letter from a patient who has launched upon a venture in litigation. Says the writer:

"I just wondered if they had come to you, as yet, to see my x-ray of my knee, and have they offered you something to destroy or mar the x-ray so that the injury would not show up so plainly in that picture. I wish to state here, that in such case, I have paid you for the x-ray and I want it to be as perfect on the day of the trial as it was the day I paid you for it. Another suggestion I would make, do not show that x-ray to any body whatsoever, as it is a picture of part of my body that I do wish to keep sacred."

THE COLORADO STATE MEDICAL SOCIETY

(Incorporated November 1, 1888.)

The next annual session will be held in Colorado Springs, Sept. 29-30, Oct. 1, 1925.

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Alternate, G. H. Curfman, Salida, term expires, 1925.

Junior, C. N. Meader, Denver, term expires, 1926.

Alternate, B. B. Blotz, Rocky Ford, term expires 1926.

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Term expires

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District 3. John R. Espey, Trinidad. 1928

District 4. W. W. Crook, Glenwood Springs. 1926

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Chaffee County—First Tuesday of each month; secretary, F. A. Jackson, Salida.

Delta County—Last Friday of each month; secretary, H. A. Smith, Delta.

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San Luis Valley—Time of meeting (not reported); secretary, P. K. Dwyer, Alamosa.

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Colorado Medicine

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EDITORIAL NOTES AND COMMENT

The Pueblo Number

This issue of Colorado Medicine is published by the Pueblo County Medical Society under the associate editorship of Dr. Crum Epler. The Pueblo society has contributed the editorials and major articles. The minor features of the journal are furnished by the regular editorial office.

—C. S. B.

Secretary Work

As this number of Colorado Medicine is prepared by members of the Pueblo County Medical Society, it is fitting here to pay tribute to one of its most distinguished members, Dr. Hubert Work, former President of the Colorado State Board of Health, Colorado State Medical Society, American Psychiatric Association, American Medical Association, and Postmaster General of the United States, now Secretary of the Interior, who has been for many years a member of the Pueblo County Medical Society and intensely active in the medical problems of the state and nation.

Those Colorado physicians who attended the American Congress on Internal Medicine and the meetings of the American College of Physicians, March 9-14 of this year, in Washington, were abundantly rewarded by the excellent scientific papers, clinics and discussions, and were delightfully impressed with the genuine courtesy and cordial friendliness of Dr. Work, who in the elevation to highest honors and national standing,

has not forgotten the friends and associates of other days.

“Love of humanity without sentimentality and meekness with power.”

To be great, and in being great to retain the common touch, is evidence of greatness, indeed. Dr. Work not only has the esteem and confidence of the national notables, his co-workers, but the respect, best wishes and admiration of the home folks.

C. W. T.

Attendance at Medical Society Meetings

Where medical societies are well attended the medical profession will be found to be prosperous, but where the meetings of the society are poorly attended, the medical profession is found wanting in esprit de corps and a very noticeable want of cooperation exists. The man who habitually absents himself from the County Medical Society virtually says to the profession “You have nothing to give to me as I know all that you do and then some.” Men of this type are dangerous in the community in which they live and a menace to the best interests of the medical profession.

It seems too bad when there is such a strong turning of the mass of the people to medical fakes that there should be such a lack of unity.

Any medical man can learn something by attendance at the society meetings, if not in a positive way, surely in a negative way. He shows a spirit of friendliness if not to

individuals at least to the profession of which he is honored by being part and he is attempting at least to deal honestly with the sick who are placing their lives in his hands. No man stands still in medicine; he either goes back and becomes a barnacle on progress or goes forward and becomes a blessing

to the profession of which he forms a part. Come out to the medical meetings, all ye of great brain, so that we weaker ones may drink in some of your wisdom; and come out to the medical meetings all ye of small mental capacity and bask in the sunshine of the wisdom of these men of greater capacity.

T. A. S.

OCULAR TUBERCULOSIS, PARTICULARLY KERATO-IRITIS*

JOHN WILLIAM THOMPSON, M.D.
PUEBLO, COLORADO

Ocular tuberculosis is an extensive subject in that tuberculosis can involve any or all coats of the eye or its adnexa. I have, therefore, selected particularly kerato-iritis with report of cases in which involvement of the cornea and iris were most marked.

In addition, this type is visible and can be studied best by oblique illumination.

In recent years a reclassification has taken place in the nomenclature, bacteriology and pathology of iritis and allied conditions. Tuberculosis is now recognized as a prominent etiologic factor in ocular disease where syphilis was formerly considered the cause in perhaps 75 per cent of cases. The text books of our college days taught us that rheumatism, trauma, gonorrhea, tuberculosis and idiopathic causes were the foundation of about 25 per cent of uveal tract diseases; and lues held undisputed credit for the balance.

Ocular tuberculosis is usually secondary to a quiescent or active tubercular lesion in some other part of the body, although there have been some cases reported of primary lesion in the eye itself. It is frequently very difficult and often impossible even where a marked constitutional reaction to tuberculin is obtained to locate the primary tubercular focus and in such cases there is a temptation for the observer to classify the ocular lesion as primary. In the majority of cases ocular tuberculosis is secondary to tuberculosis in some other portion of the body, and the disease in the eye runs a chronic course.

Finnoff has drawn the following conclusions from his experiments on rabbits where he injected live culture of tubercle bacilli into the blood stream. Tuberculosis of the eye which occurs in subjects who have an active tuberculosis elsewhere in the body is usually severe and progressive and frequently necessitates enucleation of the eye ball, while the chronic types occur in persons who have either a mild or latent tuberculosis.

In speaking of kerato-iritis, one must not consider that only disease of the iris and cornea alone exists. The close association and proximity of the different coats of the eye make it a rare condition where the inflammation of a coat is unattended with pathologic manifestation in adjoining structures. The above designation only signifies in my mind the site or origin. Whether the iris, cornea or retina are involved in its inception, if the condition advances, the ocular organ becomes advancingly affected and the patient experiences a generalized ocular tuberculosis with impaired function and eventually a phthisis bulbi or consumption of the eye, in many cases the ultimate termination. When the tubercle bacillus attacks the eye, the involved tissues undergo the characteristic changes which occur in tuberculosis of other portions of the body; and one who is familiar with the pathology of this disease can readily understand the reasons for the visible changes that occur in various parts of this organ.

There are two types, acute and chronic. The acute runs a rapid course and the involved area is quickly destroyed by casea-

*Read before the Pueblo County Medical Society.

tion and necrosis. In this variety the destruction is usually extensive and if the patient does not die soon after the onset of the eye condition, the eye is converted into a tuberculous mass which necessitates enucleation.

The chronic type is more drawn out and often confined in the beginning to one portion of the eye. The process may be active over a period of months or even years and recurrences of activity may manifest themselves at any time in an eye thought to be healed.

Cornea

Lotzner classifies keratitis of tubercular origin in three groups. First, typical tubercular parenchymatous keratitis which resembles parenchymatous keratitis of syphilitic origin and is distinguished by a more or less diffuse opacity limited to one part of the cornea which does not invade the whole cornea as syphilis does. Small points of whitish-yellow infiltration are found in the middle and deeper layers of the cornea and are isolated tuberculous nodules located usually peripherally, but sometimes found in the central part. Vascularity is never as pronounced as in specific keratitis. Sometimes in addition there are episcleritic nodules or infiltrates near limbus, typical scleritis or iritis with tubercle, usually monocular, which may affect both eyes.

Second, a simple parenchymatous keratitis characterized by diffuse opacity occupying only part of the cornea and associated with slight pericorneal injection.

Third, the typical scrofulous or phlyctenular kerato-conjunctiva. In addition to the above, tuberculosis may produce a sclerosing keratitis which consists of modified tubercles in the corneal substance and appear as grayish opacities resembling cold mutton fat. They are either superficial or deep and may lead to ulceration of the cornea. Corneal tuberculosis is seldom present without some manifestation in the sclera.

The disease is essentially chronic. In the parenchymatous and sclerosing forms, the symptoms often are not annoying and the patient only complains of slight photophobia, lacrimation, in some cases slight pain which is deep seated, and impairment

of vision, the latter depending on the density of corneal infiltration.

Iris

When the first manifestations appear in the iris, they show, according to Weeks, four distinct forms. The most frequent is that in which yellowish gray nodules are spread over the major zone of the iris. This form may be bilateral and occurs as a result of active tuberculosis in some other area. The second type is a chronic conglomerate tubercle of slow onset, showing mild inflammatory reaction. It is monocular. A third is the tubercular granuloma, occurring mostly in children. An interesting and well known characteristic of the foregoing types is the white floating "mutton fat" exudation, observed on posterior surface of the cornea and suspended in the aqueous. A fourth form is an apparent toxic condition, which leads to a partial atrophy and heterochromia of the iris tissues. The actual presence of tubercular bacilli has not been demonstrated in the iris in this latter type.

Today, with our careful history taking, detailed physical examination, neurological findings, blood and spinal Wassermanns, search for the focal infections and tuberculin tests, the diagnosis is readily made. However, without really having the above exclusion tests, the experienced examiner will usually recognize an ocular tubercular lesion.

Tuberculosis may be present in the eye and latent in some part of the body without the accompanying symptoms of loss of weight, increased temperature, etc. The primary foci are not necessarily very active and may not produce constitutional symptoms, but still be capable of discharging a few attenuated organisms into the general circulation which may find favorable surroundings for their growth in the eye, producing an active ocular tuberculosis.

It is probable that the toxic products of these organisms may have some influence in the production of lesions in certain tissues of the eye. Many persons affected with tuberculosis of the eye have the appearance of being in good general health, and unless a thorough search is made, the primary focus may be overlooked. One should examine the subject or have him examined by

a competent internist to determine whether tuberculosis exists elsewhere in the body, and to exclude other possible causes of inflammation of the eye, such as foci of infection in teeth, tonsils, prostate, etc. If active pulmonary, lymphatic, or other tuberculosis is not found by physical examination, the tuberculin test is a great aid in diagnosis. The two most reliable are the von Pirquet skin reaction and the subcutaneous injection. The von Pirquet is valuable mostly in children, the sub-cutaneous is mostly preferred in adults. The temperature should be taken every two or three hours for twenty-four hours before making a test. One-tenth milligram O. T. is injected sub-cutaneously. In case of positive general reaction, the temperature rises. If there is no rise of temperature in forty-eight hours, a second injection of one milligram O. T. is made. If this proves negative after forty-eight hours, three milligrams is used, and if no reaction in forty-eight hours, five milligrams is injected. Reaction usually occurs in ten or twelve hours, sometimes as early as six hours and as late as forty-eight hours.

Three types of constitutional reaction occur, increase of temperature, headache, backache, malaise, all symptoms disappearing in forty-eight hours. Locally at site of injection there is redness, tenderness and pain, swelling, sometimes the regional lymphatics are enlarged.

The focal reaction is an interesting phenomena. There is a mild pronounced hyperemia at the site of the tuberculous process. In some cases I have observed a decided and transitory conjunctivitis in both eyes where only one eye was involved in the disease. In all cases the inflammatory reaction is greatest in the area immediately surrounding the lesion. In corneal changes the transparency of the ocular tunic becomes slightly milky, pericorneal injection develops nearest the lesion and characteristic "mutton fat" exudation on the posterior surface of Descemet's membrane and floating in the aqueous, seem to be increased and more readily observed. The aqueous may be more cloudy. If the iris is the site principally affected, the discolora-

tion or tuberculoma may appear more edematous, larger in size and the hyperemia markedly increased. In the retina and choroid the vision may temporarily become more impaired, the cloudiness in the vicinity of the lesion may be more distinct; in fact, the whole ophthalmoscopic picture presents the affected area as an exacerbation of the process. Any apparently increased change, either in size of lesion or inflammatory symptoms, rapidly subsides in from six to twenty-four hours, and the eye is distinctly better after the reaction. It is not uncommon to see an otherwise troublesome, and at times slightly painful, eye improve remarkably after a first diagnostic injection.

In treating tuberculous affections of the eye, tuberculin has been accepted as the rational and proper remedy in addition to other general well known measures and the exclusion of any demonstrable focal infection. Many cases respond wonderfully well to tuberculin. However, relapses are frequent, particularly in uveal tract involvement. I believe the relapse is a strong indication for radical measures, such as removal of tonsils, devitalized teeth, and exclusion of appendiceal disturbances, if the lesion is of sufficient seriousness to involve the ocular function. Weeks reports Von Hippel as treating 243 cases of ocular tuberculosis with tuberculin. Of this number, Von Hippel claims to have had only 32 relapses.

It is well to appreciate that tuberculosis and syphilis seem to be joint factors in the etiology of a certain percentage of these cases. A positive Wassermann should not lead you to conclude a luetic cause alone, as both infections may influence the course of the disease. Prolonged anti-syphilitic treatment will not alone cure the condition. In fact, it has little effect in curing the eye lesion, unless tuberculin and other measures are instituted.

The first case report is that of a tubercular kerato-iritis with general involvement of the globe, necessitating enucleation.

Mrs. L. H., aged 48, came to me the first of May, 1921. Left eye began troubling her in January, 1921, by blurring of vision, inflammation of eyeball, with only slight pain.

Under treatment with oculist during this time, but eye continued to get worse. History of gall bladder disturbance three years previous; constipated. General health has been very good. Six children, living and well. One miscarriage due to fall. Wassermann negative, urine negative. General examination of lungs and abdomen negative. Large, cryptic, infected tonsils, several questionable teeth.

Examination of the left eye: vision 20-100; some slight ciliary injection, discrete pin-point to pin-head areas of grayish white infiltration in layers in cornea, apex and margin. Pupil medium dilatation, atropine; posterior synechia almost complete. Fundus reflex only, no view of fundus. Tension normal. Right eye: vision 20-15; small opacities in lens margin; general fundus negative.

Injection of O. T. gave strongly positive reaction locally at site of injection and in eye. Temperature 99, pulse 80. Tonsils removed, likewise three abscessed teeth. Gradually increasing doses of O. T. with eliminative treatment, atropine and dionin locally until October 10, 1921. Because of increased tension, iridectomy was performed October 21. Slight improvement, eye quieting and patient was allowed to go home, to continue O. T. injections under observation of family physician.

Patient returned again March 29, 1922, complaining of severe pain in left eye ball. Vision, light perception. Pronounced ciliary injection. Keratitis more marked, tension plus. Enucleation advised and performed April 3, 1922. Examination of eye ball after enucleation showed many pin-head size tubercles scattered throughout entire choroid and in layers of cornea.

Second case is that of tubercular keratoiritis, interstitial type. Mrs. C. L. D., aged 21 years, first seen October 19, 1922. Her family history is negative. One child living and well. Had a similar condition, as she remembers, with her left eye when about five or eight years of age. Present trouble with left eye began six weeks ago, vision became blurred, eye inflamed, with marked photophobia, very little pain. Has been taking "chiro" treatments during this time

without benefit, eye progressively getting worse.

Examination: Vision, right eye 20-20; left eye, fingers at one foot. Marked photophobia and lacrimation. Ciliary injection, cornea shows patchy gray infiltration in deep layers; areas more marked near limbus. Deep blood vessels running out to areas. Anterior chamber normal depth, iris inflamed, pupil small, does not react to light. No view of fundus because of infiltration in cornea; only red reflex. Tonsils removed three years ago. Wassermann negative. Weight 145. Temperature 99.4 in P. M., normal A. M. Urine negative, teeth negative. October 25, 1923, gave her five minims O. T. sub-cutaneously. There was a definite local reaction, increase in temperature to 100 three hours after injection, and eye became more irritated. Atropine and dionin locally. O. T. injections at weekly intervals, gradually increasing doses for next four months. Eye slowly quieted down, cornea clearing, discrete infiltrations disappearing and when last seen April 2, 1923, vision, right eye 20-20; left eye, 20-60.

Mrs. F. C. R., aged 29 years. Referred by Dr. Workman, Sugar City, July 24, 1923. Left eye inflamed last five or six weeks, gradually getting worse, vision very hazy. Has been in bed since April because of pulmonary tuberculosis. Has lost considerable weight. Seven years ago both eyes were inflamed, could not see to walk in street; trouble lasting four or five months.

Examination: Vision, right eye, 20-30; left eye, 20-100. Right eye shows old posterior synechia, otherwise negative. Left eye shows low grade ciliary injection, pin-head sized areas of grayish white infiltration in deep layers of cornea scattered irregularly throughout; some deep blood vessels to areas. Iris discolored posterior synechia, pupil dilates irregularly, fundus reflex only, no view of fundus. Tension normal.

Report of general examination by Dr. Workman showed active tubercular involvement with cavity formation both upper lobes of lungs. Because of this active involvement, did not advise the use of tuberculin. She was given atropine and dionin to be used in eye in addition to the general

treatment advised by her physician. October 8, 1923, patient returned. The eye was quiet, keratitis much improved and opacities thinning. Many dense post-synechia remain. The fundus is plainly visible, no retinal or choroidal involvement noted. Vision, 20-70. December 20, 1923, vision 20-40 with correcting glass. Eye is quiet, pupil regularly dilated, cornea shows slight haze from limbus at 10:30 and 11:00 o'clock down to apex, two or three small round areas of infiltration in center of cornea. Fundus negative. Patient has gained in weight and feels better generally. She was to report again in the course of three or six months, but has not returned.

I cite this case because of the marked improvement in the eye condition with improvement in her general condition with local and general treatment, no tuberculin having been used.

Tubercular Iritis in Which There Was No Evidence of Corneal Involvement.

Mrs. L. W. V., aged 36 years, married, one child. The family history is negative. General health fair, rather nervous. Constipated as a rule. Operated for fistula in November, 1919; heals up and breaks open again. Appendix removed, 1919. First trouble with eyes began 1904. Iritis right eye, treated by oculists. Eye became gradually worse, enucleation being necessary in 1912. Left eye first inflamed in March, 1919. Since then has had occasional attacks lasting from two to six weeks at intervals of three to six months. Last attack in May, 1920.

Examination: Right eye enucleated, socket clean. Left eye ciliary injection. Cornea clear, anterior chamber normal depth, iris shows broad posterior synechia involving lower half of pupillary margin. The fundus is negative. There is an afternoon temperature of 99.6. General examination as reported by her physician, chest shows chronic fibrosis right and left upper lobes, more marked right. Fluoroscope and x-ray shows lymphatic infiltration throughout upper lobes, no signs of activity. At time of removal of appendix in 1919, there was some evidence of tubercular peritonitis.

With physical findings and history of case, suggested the use of tuberculin in gradually increasing doses. This was carried out by Dr. Heller, whose patient she was, for three series extending over a period of three or four months to a series. This treatment was carried out during and following the attack in April and May, 1920, and there has been no recurrence since then. The patient was last seen January, 1923; the left eye was white, cornea clear, broad synechia of pupillary margins remains. General fundus negative. Vision 20/15. However, in addition to the tuberculin, the usual general treatment of a tubercular was not omitted; the tuberculin in my mind was a very necessary therapeutic agent.

Conclusion

It has not been my desire in this hastily written paper to elaborate on the details of the symptoms and appearance of tuberculosis in its manifold phases, affecting the different media and coats of the eye, to dwell on the minutia of differentiation between a luetic and an unquestioned tubercular invasion, or to explain the serial dosage of tuberculin. This is all beyond a limited paper and the discussion of the detail of any part would be trying for me and perhaps uninteresting for you. However, I wish to have recorded on your mind the following conclusions:

1. That ocular tuberculosis is a definite entity of frequent occurrence.
2. That tuberculin is an accepted diagnostic agent.
3. That tuberculin therapy is a proven and valuable adjunct in tuberculosis of the eye.
4. That syphilis and tuberculosis can affect the individual at the same time.
5. That kerato-iritis is not a local lesion, confined only to the cornea, and iris, but concerns the globe as a whole, and threatens partial or permanent visual disability unless proper measures are instituted.

An Early Triumph

Upwards of six thousand persons have now been inoculated with the virus of cow-pox, and the far greater part of them have since been inoculated with that of smallpox, and exposed to its infection in every rational way that could be devised, without effect.

Edward Jenner.

GALL BLADDER PATHOLOGY AND DEDUCTIONS THEREFROM

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There is one angle of gall bladder surgery which seems to have received too little notice—namely, the living pathology and deductions from it as to proper procedure when the abdomen is open before us.

For several years, working with Dr. Dunlop, I have tried to solve this problem to my satisfaction. While many points are still hazy, much has been gained by studying cases in the following manner:

1. A very careful pre-operative history and physical examination.
2. At operation, the living appearance of the gall bladder carefully noted.
3. A microscopic study of the tissue.
4. A diligent post operative review of the symptoms, with attempted reconciliation of pre-operative and operative findings.
5. A follow-up history of the case.

Based upon these studies, we have attempted to classify our cases according to the living pathology found. Throughout this paper, it must be borne in mind that arbitrary groupings of this sort must not be taken too literally and that the groups often overlap each other to a considerable degree.

As a basis of comparison, the normal living gall bladder should have the following characteristics: Blue slate color; easily emptied; no stones; no hepatitis originating from it; thin walls of uniform thickness; no adhesions; no enlarged lymph nodes due to its own infection and no subperitoneal fat about the cystic duct.

A gall bladder presenting all of these features we assumed to be normal and therefore our preoperative diagnosis of a diseased condition we considered wrong.

The pathological gall bladders were more or less arbitrarily grouped thus:

Group 1. The earliest signs of a diseased gall bladder are difficult to recognize without microscopic aid. Even very definite clinical symptoms may fail to reconcile our diagnosis. The gall bladder of this group has the appearance of a normal organ, excepting that the lymphatics along the cystic

and common ducts are enlarged. Sometimes we may find a subserous deposit of fat near its pelvis or near the cystic duct. This is regarded by Moynihan as the earliest sign from the exterior of an infection of the gall bladder walls from within.

In several of these cases the gall bladder was not molested. The patients returned within two or three years with the same or worse symptoms. Upon re-operating, the gall bladder was found definitely pathological and its removal cured the patients.

Microscopic examination of the gall bladder in these very early cases show lymphocytic infiltration of all layers, with edema or fibrosis of the villi. Fatty degeneration of cells may be present and occasionally we find beginning papilloma and even definite adenoma.

Because such early conditions are almost unrecognizable in the gross appearance of the gall bladder, what shall we do? My present feeling is that, given definite clinical symptoms and finding the enlarged lymphatic nodes and subserous deposit of fat, as already described, we are justified in doing a cholecystectomy. Before deciding upon such a procedure, one must be certain that these glands are swollen from gall bladder infection and are not due to a diseased pancreas, duodenum or an expression of general abdominal infection.

Group 2. Here again we are dealing with early cases. The outstanding pathology is found to be adhesions of the gall bladder. Careful observation must demonstrate that these adhesions are not caused by other abdominal disease. These adhesions we interpret as having been caused by infection of sufficient intensity to have irritated the peritoneal covering. The gall bladder in these cases may appear nearly normal. Usually, however, when there has been sufficient inflammation to produce adhesions, the gall bladder shows some after effects—in being thickened, sluggish in emptying, with enlarged lymphatics. Such a gall bladder should be removed. The infection is latent. It has been severe enough to cause

considerable reaction. It is ready to recur at any time.

Drainage will usually cause a marked temporary improvement; but without cholecystectomy a return of the symptoms is to be expected.

Group 3. On occasion one may find a gall bladder which seems normal, but which contains stones. These "innocent gall stones" are often found at autopsy. But, as stated by W. J. Mayo, it is not the gall stone that's innocent, but the doctor, and the late patient is unable to tell his story.

Careful search is likely to reveal gross pathology of the gall bladder; but even though not found, the gall bladder should usually be removed.

This is the class of cases in which cholecystostomy gives its best results. The removal of the stones will permanently cure, however, only if the infection has subsided or has been maintained merely by the stones.

Group 4. This group often reveals many of the conditions already described, but the outstanding feature is localized hepatitis more or less definitely surrounding the adjacent gall bladder. Of late this type of hepatitis has received much attention. Some surgeons even go so far as to say that it is always to be found in cases of chronic cholecystitis. The appearance is distinctive—two types always being found, the first type being the forerunner of the second. In the early stages, dull gray patches are found on the liver near the gall bladder. Later we find white lines of varying length. These may be few in number, and short. They may be many, long, irregular and branching; still later in the disease they may show depressed scars interlacing in various directions. In the early stages they are located in close proximity to the gall bladder; later they are found not only on the under surface of the liver, but may extend for several inches on its convex surface.

These patches, lines, and scars always radiate from the gall bladder. In far advanced cases a large portion of the liver may be involved.

We have taken sections of the diseased liver in these cases and invariably have found a hepatitis.

Sudler has proven the source. He injected the walls of the gall bladder of the living dog with Prussian Blue. At first the gall bladder lymphatics stood out. As the injection continued, the lymphatics of the liver became apparent with identically the same patterns as seen in hepatitis. This would indicate that our infected gall bladder soon spreads its infection through its walls to the liver lymphatics. As time goes on this infection spreads further and further and, as in all chronic inflammations, the time comes when scar formation begins, the liver cells are more or less squeezed out of existence and the liver damaged beyond repair.

Cholecystectomy is the operation of choice; otherwise further destruction of the liver is eminent and may be serious. When advanced changes are found, this class of cases does not, as a rule, react well to operation. It would seem that the presence of so much diseased liver tissue predisposes to a stormy convalescence. This bears out Crile's theory as to the importance of "prognosis and a good liver".

Group 5. Cases of acute cholecystitis with or without gall stones. These are difficult to manage, since they ought rarely to come to operation during the acute stage. It is far better to treat them expectantly until the acute condition has become quiescent. In this way the operation is much easier to perform, the mortality is less and the final result much better. There is always a temptation to operate this type at once. If we have unwittingly gotten into this predicament, we find a thick, tense gall bladder, very adherent with new and probably old adhesions. The ducts are enlarged and thick. Manipulations are difficult because of friability, oozing and adhesions. The gall bladder frequently has a half twist and is bound down far from the surface. These cases have so much infection in or about the gall bladder, or so much induration and edema in or about the ducts that removal is serious, for there is danger of contamination with virulent bacteria. In such a condition cholecystostomy may be forced upon us—later to be followed by cholecystectomy. as such cases are most prone to recur.

that immediate operation for acute cholecystitis has its advocates. But those surgeons should remember that acute perforation of the gall bladder is rare. If, however, acute symptoms do not subside or if they increase in severity, it is best not to postpone cholecystostomy too long, for fear of extension of infection to liver and pancreas.

Group 6. Acute gangrene of the gall bladder has but one answer.

Group 7. The perforated gall bladder, when acute, requires removal, if without undue risk to the patient. The safe game to play is to drain and later to remove the gall bladder. The latter is now difficult, because of extensive adhesions.

Chronic perforation frequently means a collection of pus beneath the liver. These cases are usually most difficult to handle. The dense adhesions and distortions destroy landmarks. A rupture into a neighboring viscus may have occurred. Finding and repairing such damage will try the patience of an angel and the surgical ability of a Mayo.

Group 8. Tumors are often found. Papillomas are frequently seen on section of the gall bladder. Adenomas are rather uncommon. Both of these tumors are almost always associated with chronic cholecystitis. They are mentioned, not because they are usually recognizable in the unopened gall bladder, but because their presence emphasizes the importance of excision rather than drainage. If they have anything to do with the original cause of the gall bladder symptoms, they should be removed. If they are left behind, how do we know that they will not later degenerate into malignancy?

The malignant tumors of the gall bladder, when operable, are found by accident; when inoperable, they are typical of cancer elsewhere. Unfortunately a palliative operation does no good and only prolongs a miserable existence.

Nothing has been said concerning stones in the hepatic and common ducts. They do not properly belong to this discussion excepting that search for them should in-

variably be made in all gall bladder operations. Their removal is imperative for the safety and well being of the patient. Nor has anything been said about jaundiced cases. They properly belong in other discussions.

The general subject of gall bladder pathology should not be passed over without a word as to the old-fashioned gall bladder type. Fortunately, less and less frequently are these cases shunted from physician to physician—or worse—with the diagnosis of “gastritis” or “dyspepsia”. Finally the day comes when his condition becomes intolerable—and we find a prematurely old, fat, flabby cardiorenal wreck begging for relief. This state of affairs is just as pathological as the worst gall bladder, and woe to him who is rash enough to operate such a case without careful preliminary preparation.

The overweight should be corrected, the constipation relieved, the heart and kidneys put in best possible condition before any attempt of surgical interference is made. And even then such a case should be approached with a prayer in our souls.

As a final thought, provided what has already been said is true, how much can be depended upon from exploring the gall bladder region from an incision far removed? Is the gloved hand sufficiently sensitive to detect anything but the grossest pathology—such as stones or advanced other disease? If we are correct in early diagnosis, I can see no way of proving it excepting by direct inspection. And this brings us once more back to the old contention that we must use more and more care in making a diagnosis before operation.

And this leads us once more back to that oft repeated “there are few surgeons and many operators”.

To this may we not add, “There are few surgeons—but these few are surgeons primarily because they know their pathology.” They are surgeons because they know living pathology and always examine tissue removed—both grossly and microscopically. And if they have made an error they go back to the patient, painstakingly go over the history to find where their error

has been, and they have sufficient courage to admit that they have made an error and make every endeavor not to allow the mistake to be repeated.

Finally, can any conscientious surgeon say that any case requires more experience and judgment than the diseased gall bladder?

OSTEOCHONDRITIS DEFORMANS JUVENALIS

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The incidence of osteochondritis deformans juvenalis and the frequent confusion of it with tuberculosis of the hip joint, warrants this review of the subject.

Incidence

Although nearly four hundred cases have been reported, this does not represent the true incidence. All authors writing on this subject comment on the fact that in nearly every case the primary diagnosis is tuberculosis of the hip joint. It would be impossible to determine how many cases of osteochondritis are still filed away under the diagnosis of healed tuberculous hip joint disease. A restudy and reclassification of all such cases would swell the reported cases of this disease. Quite frequently the diagnosis is found to have been made only after a retrospective study of the case. Another factor that must be considered is the number of unreported proven cases. I know that many of the correctly diagnosed cases have never been reported. Osteochondritis deformans juvenalis is much more common than the actual number of reported cases would indicate.

Symptoms and Diagnosis

The clinical picture is the source of much confusion because of its close resemblance to tuberculosis of the hip-joint. Both occur at the same age of life, both are likely to have a history of trauma, both have an insidious onset, and both have disability of the affected hip. The characteristic symptom is a limp. The limp appears early in the course of the disease and persists late. This limp is the symptom par excellence. Pain, if present, is not severe.

The local symptoms of tuberculosis arthritis, as severe pain, muscular spasm and night-cries, are absent. The general symptoms of tuberculosis, namely, fever, night-sweats, and loss of weight are not present,

and the general health is good. The von Pirquet test may also be of assistance in the differential diagnosis.

The physical findings are no more definite than the history. Muscular atrophy and shortening are only occasionally present and only to a slight degree. There is usually some limitation of motion, especially abduction and internal rotation.

Roentgen-ray Differentiation

A somewhat similar confusion exists in the roentgen-ray differentiation as in the clinical picture. I believe that the error is due more to the fact that osteochondritis deformans juvenalis is not thought of and considered than to a similarity of the picture. Baetjer and Waters¹ state that in typical cases of this disease the x-ray appearance is pathognomonic and when once seen can always be recognized. Unfortunately many cases are not typical and have many of the appearances of a destructive arthritis. There is none of the haziness and lack of detail in the roentgenogram so generally seen in the destructive arthritis of tuberculosis. The epiphysis is flattened and often appears denser than normal. Frequently it is separated into two or more segments, but is never eroded or moth-eaten. The femoral neck is broader than normal. It frequently appears thickened, and sometimes a comparative study will show that it is denser than its fellow of the opposite side. Typically, the acetabulum shows no change, but occasionally it is mechanically altered by pressure resulting from changes in the femur. As time goes on the epiphysis becomes flatter and the neck broader, as has been demonstrated by pictures taken of the same case during the course of the disease. In the late stages, the head may come to have a mushroom appearance.

What finally becomes of the flattened head? Kirklin⁶ reports two patients who are cured. These men served in the late war. Roentgenograms of the hips of the two patients show good articular surfaces. The heads are not well rounded and the necks are short and thickened with apparently coxa vara. The latter is usually more apparent than real. Probably in some cases the head reforms and unites with the shaft. In others it is absorbed and the neck becomes rounded to form the articular surface. But, in either event, the resulting articular surfaces are good. The ankylosis expected as a result of the healing in tuberculosis arthritis never occurs. This very fact makes the prognosis in the two conditions very different.

History

I believe the reason for overlooking this condition or confusing it with tuberculosis of the hip joint may be traced to the fact that a knowledge of it is not prevalent. This is explained by the rather recent recognition of osteochondritis deformans juvenalis as a definite pathologic entity.

In his "Pathological and Surgical Observations on Diseases of the Joint", published in 1842, Brodie² called attention to the fact that certain cases of tuberculosis of the hip joint, if treated early, effect a complete recovery. Almost certainly Brodie was basing his statement upon cases of osteochondritis deformans juvenalis.

In February of 1910, Legg⁹ of Boston, published a paper under the title of "An Obscure Affection of the Hip Joint". He described five cases having the symptomatology now associated with osteochondritis deformans juvenalis. Later the same year (July of 1910), Calve³ in France, separated ten cases from among five hundred cases of coxalgia which presented the same syndrome.

In the same year, Perthe⁸, in Germany, described the same clinical picture and gave the roentgenologic findings, but erroneously concluded that the underlying pathology was an arthritis of the juvenile type. As in the history of many other discoveries in medicine, three observers, working independently in three different countries, al-

most simultaneously recognized a new disease entity.

In 1913 Perthe⁸ published a second article after he had operated on one of these cases, and had had the opportunity to study the gross and microscopic pathology present. He repudiated the arthritis hypothesis, and ruled out tuberculosis, and gave the name osteochondritis deformans juvenalis to the condition. Notwithstanding Legg's priority, the condition is commonly called Perthe's Disease today.

Etiology and Pathology

The etiology has been the factor of greatest dispute in this disease. All agree that it is more common in boys and that the onset is between the ages of three and ten. The disease, while usually unilateral, may be bilateral. Among the etiologic factors debated are: (1) rickets, (2) syphilis, (3) congenital abnormalities, (4) variations in the endocrine glands, (5) infection, and (6) trauma.

Legg, in his original contribution, suggested trauma and in a later paper (1916), reaffirmed this belief. Garvin⁴ reviewed all the possible theories of etiology and concluded that trauma was responsible, with possibly an infection superimposed on the original process. McWhorter⁷ had an opportunity to study an early operative case, and his evidence corroborates the infectious origin.

The pathologic changes found are a disturbance in the ossification of the epiphysical cartilage with atrophy, and hypertrophy of the femoral neck. The atrophy is probably the result of circulatory disturbances and pressure.

Case Report

No. 5916, a boy of four years, was brought to Pueblo by his parents in November, 1920, because of a limp.

The family had moved to Colorado about ten years previously because the father had been diagnosed as having pulmonary tuberculosis. The father is apparently perfectly well today, and otherwise the family history was negative. The previous personal history was negative.

Two weeks before consulting a doctor, the boy had fallen from a hay stack, striking

his right hip, but apparently without inflicting much injury. Nothing abnormal was noticed until the limp developed. Pain was present, but not severe; no fever, night sweats or night cries.

Examination at that time showed a well developed, well nourished boy, and was negative except for the right hip. There was a marked limp and limitation of motion, but no muscular atrophy, tenderness, or shortening of the limb. Roentgenograms were taken and reported as showing tuberculosis of the right hip.

He was placed in a plaster cast, in a slightly abducted position, and instructed to remain as quiet as possible. He was kept in the cast for two years and a half. Another roentgenogram was taken through the cast. Due to the cast, the pictures were not wholly satisfactory, and the true pa-

There is a slight muscular atrophy, probably from disuse.

Comment

This case is interesting for at least three reasons: (1) it is a typical history of osteochondritis deformans, (2) for nearly three years it was regarded as tuberculosis, and (3) the means by which an accurate diagnosis was reached.

This case also illustrates how difficult it is to remove the stigma of tuberculosis, once it has been stamped upon a patient. The paternal history, plus the original roentgen-ray diagnosis, so fixed the minds of the clinicians upon tuberculosis that the consideration of any other pathologic condition was entirely excluded.

The case was placed in the hands of a different physician during June of 1923, and after another roentgenographic study (the



Fig I. Roentgenogram taken Nov. 16, 1920, elsewhere. Diagnosis made of tuberculosis of the right hip joint.



Fig II. Roentgenogram taken in June, 1923, at the Pueblo Clinic. See case history for description.

thology was not recognized. He was then put upon a Bradford frame for twelve weeks with extension, and heliotherapy started. Roentgenograms at the end of this period showed a broadening of the neck of the femur, and the epiphysis flattened. The head, while flattened, was still quite well developed and not eroded or "moth eaten." The acetabulum was uninvolved.

At the present time there is no shortening of legs, no pain or tenderness, and no limitation of motion. The limp has disappeared.

one described in the case report), the whole case was reviewed. The original films were secured, and after a restudy of all the films and a review of the clinical evidence, the diagnosis of osteochondritis deformans juvenalis was made.

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CRYPTORCHIDISM

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Faulty descent of the testes has been termed cryptorchidism. This implies that the testes have either remained in the abdomen, descended and stopped in the inguinal canal, or found their way into the perineum or even into the femoral canal. Monorchidism, by far the commoner occurrence, refers to the maldescension of one testis. Normally the testis makes its descent from the mesonephros down the abdominal cavity into and through the inguinal canal, carrying with it its coverings of peritoneum and fascia. The descent into the scrotum is complete at birth generally. Some animals are cryptorchids normally, the elephant being one. Other animals are so seasonally, the testes descending only during the rutting season.

The subject is of interest from three standpoints, namely, its rarity, its relation to hernia, and its liability to become malignant. I will here report facts discovered in a study of 391 such cases studied in the record room of the Mayo Clinic. This number was found in a period of twelve years (1910-1922).

The condition is rare, for only 391 cases were found among 147,567 male patients examined during this period, giving an incidence of .256 per cent. I dare say that none were missed, due to rigid rules of examination and the checking given by one or more consultants. This percentage is higher than found in reports from recruiting stations, due perhaps to the fact that one so deformed would refrain from applying for army or navy service. Of such cases, 8,538 were found during the draft examinations

in this country, giving a percentage of .31. The incidence by this study was found to be highest in the northwest and lowest in the southeastern states, perhaps a racial influence. Statistics from the London hospitals give the incidence as over 0.4 per cent. At best it is a relatively rare condition, although of great importance to the few affected. The commonest seat of the undescended testicle is in the inguinal canal, 192 of the 227 cases that were operated upon being so placed. In this position it is subjected to more trauma than it would be in either the scrotum or the abdominal cavity.

Relation to hernia is more than important. Of the 391 patients with this condition, 227 were operated upon and 224 found to have associated hernias. The three without hernia were unusual, two having very atrophic testes and the other having a hernia on the side of the properly placed testis. Hernia is to be expected, due to the proximity of the inguinally placed testicle to the internal inguinal ring, not allowing the usual sealing off process of the peritoneal coverings.

The incidence of malignancy in this series was 0.67 per cent, or three proven cases. The incidence is raised by three other cases which were not operated upon, and of which we have only the clinical diagnosis as evidence, making the percentage 1.5 per cent. Referring to a paper of mine in the July, 1924, issue of *Colorado Medicine*, the incidence of malignancy in the normally placed testicle is 0.033 per cent, therefore making malignancy more probable in ectopic testis

than in those normally placed, even though the former be very rare.

Text books tell us that monorchidism is more apt to occur on the right side than on the left. This I found substantiated in this series, 120 being on the right side, 81 on the left, and 23 having both sides affected. All three malignant testes were removed from the right side.

The treatment used in this series might be of interest. Of the 391, 167 were not operated upon, due to the fact that some did not wish operation, some had more serious matters for correction, and three had supposedly inoperable tumors of the undescended testicle. There were 227 operated upon and of this number, 38 were castrated, including the malignant cases, and many atrophic testicles. Thirty-five had the testis replaced in the abdominal cavity because it was not feasible to lengthen the cord sufficiently to place and retain it in the scrotum. One hundred and fifty-four had either the Bevan operation or one of its modifications. The last mentioned method is the treatment of choice and according to this series can be done without injury to the testis in 67 per cent of the cases. Even though it be necessary to sever all the structures of the cord except the vas and its vessels, there remains practically no danger of gangrene of the testis, none occurring in this series. It is well, however, to save the spermatic artery wherever possible. Operative technique consists of freeing of adhesions, ligation and cutting of the spermatic veins, making a tunica for the testicle from the processus vaginalis, and suturing the testis into the scrotum. Closure made by the Bassini method without transplanting the cord, and with special reference to a tight external inguinal ring.

Follow-up letters failed to find that any of these had developed malignancy, either among those abdominally placed or those on whom the Bevan operation was done. This rather emphasizes the fact that the testis removed from trauma is less likely to become malignant. The proven cases of malignancy were removed from the inguinal canal. The average age of the patients so operated was 31, also being the

average age for development of malignancy in the testis as found in a series formerly studied.

Therefore the disposal of such cases, with the above series as a guide, should be easy, provided the Bevan operation can be performed and the hernia radically corrected. If the testis cannot be brought and retained in the scrotum, it is advisable to replace it in the abdominal cavity, thus retaining the internal secretions furnished by this organ if not its spermatogenic power, a mooted question. If the testis is of a questionably malignant character or entirely atrophic, it should be exercised. Operative correction is indicated before the age of puberty, and only after it is certain that normal descent will not occur by manual manipulation and time.

One of the cryptorchids in this series proved to be a case of true hermaphroditism. Testes, microscopically proven, were removed from the inguinal canals and post mortem examination about one year later revealed the presence of uterus and two atrophic ovaries. She had dressed and passed as a woman, although heavily bearded, and of mannish appearance.

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An International American Bureau of Child Welfare was recently established in Montevideo, Uruguay, to deal with child-welfare matters of interest to all the American countries.

Wheat grown under irrigation has a lower protein content than wheat grown with no irrigation.

SOME PROFESSIONAL OBSERVATIONS MADE ON A PLEASURE TRIP TO THE SOUTH SEA ISLANDS, NEW ZEALAND, AND AUSTRALIA

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PUEBLO, COLORADO

The Queen's Hospital at Hawaii has just completed an excellent, well ventilated and up to date addition. We were shown through the rooms and wards; Operating Rooms and Laboratories and the Baby and Obstetrical Departments.

The patients certainly have exceptional advantages in a mild, unchangeable climate, where they are exposed to fresh sea air day and night.

The Baby Department has a sound proof ward that the young who cry for exercise, as well as on account of discomfort, may exert themselves without disturbing their neighbors.

A man was stationed on a neighboring, isolated island to make scientific observations for the United States Government. He and his wife were the only whites on the island. His wife went to Queen's Hospital where she was confined, the baby and mother made uneventful progress and in due time both baby and mother returned to the island where the husband was stationed. A little later the mother's milk failed. There were no animals to furnish milk and no immediate means of obtaining artificial food. A native woman offered her assistance and green cocoanut milk was given the baby. The baby thrived on this substitute. When the doctors at Queen's hospital were informed, they began investigations and experiments and found a new and excellent infant food. Here at hand was an old but undiscovered Nature's remedy.

The Laboratory showed that green cocoanut milk contained 0.725 per cent protein matter; 2.98 per cent sugar; 1.02 per cent fat. This is considerably less than the normal mother's milk, but the proof of the eating was the result.

The doctors are now investigating and reporting.

We were told of another unique case that came unexpectedly under the observation of

the doctors. It might be termed "The Human Poptun."

K. Y., aged 51, a Japanese, was admitted to the Queen's Hospital on June 5th. Twenty-four hours earlier, during an altercation with another Japanese, K. Y. was struck with a stone just below the left scapula. When brought to the hospital, his entire body was so swollen that recognition by intimate friends would have been difficult; there was emphysematous crackling everywhere except in the palms of his hands and the soles of his feet, and percussion gave drumlike tympany from head to foot. The skin was tense and shiny. The face was swollen to almost twice its normal size, and the soft tissues about the eyes were so distended with air that the lids could not be parted. The scrotum was distended to the size of a child's head.

The patient was conscious, his pulse was 80, his temperature 98.6 degrees, and his respiration 24, but rather shallow and labored. He assumed the knee-chest position to secure relief. Percussion of the chest gave little evidence as to the condition of the lungs, owing to the extensive emphysema, but auscultation revealed breath sounds absent over the left thorax. The crepitation of broken ribs was palpable.

The patient was relieved by inserting a trocar into the left thoracic cavity to relieve the positive pressure, and by making two small stab wounds through the skin of the chest, through which much of the subcutaneous collection of air escaped in a manner suggestive of a punctured automobile tire.

An idea of the pressure under which the air was confined is given by the fact that when a needle, attached to a luer syringe, was inserted through the skin, the piston of the syringe was blown out of the barrel.

By massage, most of the subcutaneous air from all parts of the body was forced out of the two small stab wounds in the chest,

and within two hours after the patient was admitted, he had regained his normal proportions and was comfortable. His chest was strapped with adhesive, and at the time of his discharge, eleven days later, practically all the residual air in the tissues had been absorbed.

X-ray pictures taken before deflation were particularly interesting. The skin was seen to be lifted by a cushion of air which varied from one-fourth of an inch to one inch in thickness. They also showed fractures of three ribs, a complete left pneumothorax, and the left lung closely contracted at the hilum.

Rotorua Mineral Springs, New Zealand

The mineral springs and baths at Rotorua, New Zealand, we found interesting.

For several square miles the earth sweats mineralized hot and cool water and steam. The springs and blow holes vary in size from one-half inch in diameter to lakes of several acres. The bath houses are up to date in every way.

A limited detail may not be out of place in connection with this report.

The mineral water, though of great variety, may be divided into two main classes; the acid sulphur waters and the alkali sulphur waters, of which the "Rachel" perhaps is most famous.

The following statements are made, and judging from the number of visitors and their conversations, they are quite commonly believed.

The acid waters are used only for bathing and contain among other ingredients, free sulphuric acid. It is claimed that they have a very stimulating effect and are useful in all forms of gout, rheumatism, sciatica and in anemia.

The alkaline waters are used both for bathing and drinking. The Rachel is an alkaline sulphur water and is used in gouty conditions and some forms of indigestion. Owing to the fact that sulphur water quickly decomposes and becomes nauseous, it must be drunk as fresh from the spring as possible.

As a bath this water is useful in certain skin diseases, especially eczema.

In addition to mineral waters, the volcanic mud of the district is used for mud baths.

This mud, composed largely of silicates and free sulphur, is used as an application to painful joint affections, also is valuable in some skin diseases.

There are a number of bath buildings, each with its own particular kind of water.

The radium bath is clear and sparkling, pale green, and tepid rather than hot—84° F. It bubbles through the natural pumice floor and is effervescent with natural gases, chiefly carbonic acid. It is said to be especially efficacious in neurasthenia and as a modified Nauheim bath in heart disease.

The Duchess bath is a covered hot swimming bath for men.

The Blue is an open air hot swimming bath for men.

Bath average in temperature is 104° F.

These baths are used for the treatment of chronic rheumatic and rheumatoid conditions.

Many of the bath buildings contain suites of beautifully appointed private baths, supplied with waters of different properties from various springs and filled with every modern balneological apparatus.

These private baths vary in size from that of an ordinary bath tub, to larger and deeper ones holding 600 gallons of water. The larger baths may be used by one person, or two or three friends may go in together and thus reduce the price per bath.

Every bath has a well appointed dressing room and a hot pack can be obtained.

The baths here are under the control of the Government.

A negative Wassermann blood test is one of the requirements for membership in the college fraternities at Albion College, Albion, Mich.

More than four times as many coal miners were killed in the United States last year as were killed in England.

Octopus: Good night! Let's get out of here. Here comes that boresome Johnnie Shark.

Devil Fish: Why do you say that?

Octopus: Oh, he's always talking about the time he caught a man twelve feet long and let him get away.—Life.

HYPERTENSION

An Opinion Concerning Its Cause and Practical Treatment

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PUEBLO, COLORADO

I shall make no attempt in the following discussion to offer proof of the correctness of my conclusions. To do so would require tiresome verbosity and space not at my command. I shall deal with what may appear considerable extraneous matter because I believe it has had an important bearing upon my final conclusions. I began twenty-six years ago the study of puerperal eclampsia and have come to the following opinions as to its cause and treatment. Puerperal eclampsia is primarily a disease of the placenta due to syphilis, influenza, colds, errors of diet, infections, local or distal, dyscrasias and trauma, as a result of which the placental tissues are rendered permeable in two directions, permitting antigens composed of elements of identity from broken down maternal liver, kidney, and many other types of cells, to be carried into the circulation of a fetus or an hydatidiform mole, from which in time reversible colloidal antibodies may be admitted to the maternal circulation, and if sufficient in amount and degree of toxicity, cause the conditions recognized as the pre-eclamptic state or eclampsia. The treatment should be directed to a correction of the initiatory cause, the patient put at rest, given a milk and raw fruit diet and sufficient water to maintain the urine as near zero by the urinometer as possible, in order that the reversible colloidal antibodies may be eliminated through the maternal kidneys, and if necessary, to preserve the life of the mother, the offending fetus should be removed.

It is interesting to reflect that given a permeable placenta, elements of identity derived from the fetal circulation and representing fetal tissues would, under these conditions, also enter the maternal circulation, with a somewhat different result for the following reasons: The elements of identity passing from the mother to the fetus are more permanent in nature, because the adult identities change more slowly than do the fetal identities, for the reason that the modi-

fications of communal identities are brought about by cell proliferations, and vary directly with their rapidity. In the case of the fetus, the coordinated identities are changing so rapidly that the defensive forces of the mother are unable readily to overtake and damage them with specific antibodies, except at or near term, when a comparatively slow cell proliferation rate has been attained.

The hypertension in eclampsia is caused by antibodies from the fetus, which attack the cells of the vascular system, causing a spasm of the musculature, with the resultant hypertension. The nephritis is caused by colloidal antibodies specifically toxic for the parenchyma of the kidney. The headache, convulsions, and coma are caused by uneliminated effete material and antibodies specific for arterial and brain cells, and the accompanying hypertension. The necrotic areas in the liver illustrate the severe type of reaction, complicated by thrombosis, which sometimes takes place in tissues which are tolerant of such insults, without always being followed by death, as a result of colloidal antibodies formulated by the fetus and specific for the maternal liver cells. The shower of antibodies making up the fetal thrust against the maternal tissues, therefore, varies with the identities involved, and bring about the symptom complex which we call eclampsia gravidarum. I believe that the maternal tissues, and more particularly the connective tissues, are endowed with the faculty to and often do store these colloidal antibodies in an edema, and by adsorption, thus for a time, protect the maternal special tissues from the colloidal antibodies derived from the fetal circulation; and that at times these colloidal antibodies are suddenly released, and bring about a moderate, severe, or even fatal eclampsia, thus accounting for the sudden attacks preceding, accompanying, or following labor.

It is interesting to reflect that inter-cell

harmony of relative identity maintained in the body of the average individual, probably in varying degrees of minor or major ease and exactitude, under certain conditions breaks down, and the condition of variance of identity may exist between certain groups of cells.

From the beginning of biological time on earth to the dawn of civilization all living organisms have been subjected to vast environmental fluctuations, but of all these none have been more certain to recur from time to time than a partial or complete deprivation of food supply. The fact that man can exist for a matter of thirty days without food, provided he has access to water, is of itself proof that this has been a common experience of his whole ancestral line, and its occasional recurrence a probable necessity, if he is to live out the full term of his expectancy. Longevity exists not alone of the body as a whole, but it is probable that in any given case a man is possessed of organs or groups of cells which may have a longer or shorter life expectancy than the balance of the body, as a whole or in part.

In all living organisms there may be noted a variation of life expectancy, first of the species and then of the individual. The creature which becomes old at three years, and the other which becomes old at eighty years, may be said to possess in varying degrees a harmonious communal identity for a lesser or greater period because of their heredity. The life of a man who has lived to the age of eighty years exhibits first a fertilized ovum which has had the inherent power to proliferate at varying rates of speed a vast number of times, and still be capable of maintaining a harmonious inter-relation of its component parts or cells. Should any organ or collection of cells be compelled to proliferate at a rate greater than that required to maintain itself in harmony with the other organs and cells, it may then change the general character of its group identity, and become to all intents and purposes a foreign or invading cell group. In the opinion of the writer this is quickly recognized by the other cells of the body, and colloidal antibodies are

readily formed against the new identities. These antibodies make a specific attack against the modified cells, with the resultant reaction which I characterize as a vicious cycle of cell destruction.

Atherosclerosis is the resultant in varying degree of a long continued overload or irritation, local or general in character, of the arterial tree. There may be a marked general atherosclerosis with a hypotension indicating that where there is a general overload of all the body cells, as in a hard-working man eating large quantities of food, the communal cell identity may be very evenly maintained, and he die of a general senility at a comparatively early age. A too rapid proliferation of all cells therefore causes the early death of a harmonious organism by a general failure of all tissues. A too rapid proliferation of one group of cells causes early death due to the failure of inter-cell harmony. When the cells of any particular group have for some time been proliferating at a rate greater than the other cells until antibodies are formulated against them, there is then initiated a vicious cycle of destruction of these cells, further increasing the rate of proliferation, making wider the divergence of identity, and ever increasing antibody formation. It is important at this point to indicate that certain groups of cells, against which a vicious cycle of destruction has been brought about, have left but two opportunities of escape from the antibody attacks made by the other somatic cells. The rate of proliferation may be so speeded up that the defensive forces of the body are unable to overtake the new identities and among the cells of the rapidly proliferating group there may arise a further inter-group diversity of identity such that there will be submitted to the defensive forces of the other body cells such a multiplicity of diverse cell identities as will result in the blurring of their powers of cognition and specific attack. Such cells of diverse identity and newly attained powers of exceptionally rapid proliferation are believed by the writer to be malignant. In fact all types of malignancy are alike, insofar as the causative factors are modified only by

the character of the tissue cells involved in the malignant processes, or there may come a degree of reorientation of the group identity to conform with the other somatic cells, and a restoration to health.

Let us now return to a discussion of the hypertension syndrome, and see if theoretical reflections can help to lead us to a proper interpretation and practical treatment of this condition. I have said above that practically any part of the arterial tree, as a result of a localized overload, may have its intimal cells so rapidly injured and destroyed as to cause either (the point to be especially noted at this time) a moderate, severe, or complete destructive intinitis, with or without infection. This, it will be recalled, the writer has suggested above as having been initiated by overload and perpetuated by the vicious cycle instituted by other somatic cells, through the formation of antibodies specific for local areas of intimal cells, or other cells of the entire arterial tree.

An important point in the administration of water to the patient on a low diet, is to remember that his powers of generating heat are limited, and that he should drink the water at a temperature which should be determined by the clinician in accordance with the needs of the individual patient under treatment. For instance, the patient drinking two to three gallons of water during each twenty-four hour period should take it at a temperature calculated to furnish such additional heat units as are necessary to fortify his heat reserves during the twenty-four hour period.

The foregoing reflections have led the writer to the following conclusions with reference to pernicious anemia. When hematopoietic tissues have been called upon to fabricate erythrocytes in large numbers and beyond normal requirements by a rapid proliferation, either continuously or at brief intervals, there is sure to follow an altered identity of the red cells and hematopoietic tissues. To all intents and purposes the changed erythrocyte has become an invading cell, and with this status in reference to the other somatic cells, the fabrication of antibodies is soon brought about. The

antibodies are calculated to destroy the red cells and hematopoietic tissues of changed identity, and thus the vicious cycle of destruction becomes fully established.

Increased destruction, increasingly rapid reproduction of red cells, and further change in identity, develop a cumulating vicious cycle of destruction and eventually pernicious anemia.

One of the most characteristic of the phenomena of the symptom complex known as puerperal eclampsia is increased blood pressure, which at times becomes very high. In the great majority of cases of puerperal eclampsia accompanied by high blood pressure, which terminate in recovery, normal arterial tension is regained. Now the chief factor in the cause of the increased tension was a flood of antibodies fabricated by the fetal tissues for specific reactions with arterial tissues, due to the fact that identities resident in the maternal arterial tissues had obtained admission to the fetal circulation, where the specific antibodies were created and thence entered the maternal circulation to cause a specific attack upon arterial tissues with a consequent irritation and reaction termed high tension. It seems reasonable to believe that were these specific toxemias to be continued over a long period of time, the consequent destruction of arterial tissues must eventually result in the rapid proliferation of involved cells with the result of a change in identity which sooner or later would establish the disease entity known as atherosclerosis, as previously mentioned. It is probable, as has been mentioned above, that in many somatic cell systems normal inter-cell balance is secured and maintained in varying degrees of major and minor ease and exactitude, a conception which offers an explanation as to the susceptibility of individuals of certain families with reference to a particular disease such as atherosclerosis, nephritis, or diabetes.

I repeat here, that the coordination of two identities represented in guest and host cells is facilitated by a balanced, low or basic diet, or fasting, and a maintained specific gravity of the urine approaching that of water.

The period of time required by host cells to develop antibodies against guest cells or fractions thereof is probably the direct indicator of the degree of divergence in identity existing between the host and guest cells. The greater the divergence in identity, the more promptly will antibodies be formed; whereas very fine differences of identity will be indicated by the increased length of time required to fabricate defensive antibodies.

When the symptom complex spoken of as diabetes has become established, the actual condition is somewhat as follows: Certain cells or groups of cells, such as those making up the Islands of Langerhans, have been for a long time subjected to a localized overload, which has resulted in the exhaustion and destruction of many of the members of these cell groups. A rapid reproduction on the part of many of the remaining cells, and a progressive divergence from the identity common to the somatic cells as a whole, follows the initiation of the localized overload. Superimposed upon this, after a time, has come recognition by the general cell mass of the localized changes in cell identity; therefore, defensive antibodies have been fabricated and the vicious cycle previously mentioned has been established. The fasting or starvation treatment of diabetes depends for its success upon a removal of the overload, a cessation in the proliferation of the involved cells for such a period of time as may be required by the involved cells to attain an identity approximating that of the system involved.

The injection of pancreatic tissues of widely divergent identity into the diabetic may prove of value in the treatment of diabetes, by blurring the power of other somatic cells to recognize the finer divergence attained by the diseased cells, thus permitting them more freedom for the attainment of an identity satisfactory to the preponderant mass of the involved system. The use of insulin in the treatment of diabetes offers an opportunity to give physiological rest to the cells of the Islands of Langerhans and will help in the abolishment of the vicious cycle of cell destruction. I believe that the diabetic who, through the proper use of insulin, has had

his metabolic processes restored to a condition approaching normal, should have arranged for him a definite water intake regime, with the intent to eliminate autolytic antibodies formulated against the insulin fabricating cells in his pancreas. However, a certain amount of work should be required of them, in order that they may be stimulated toward a coordinated regeneration.

It has long been the belief of the writer that certain types of insanity follow change of identity, or failure to follow changes in communal identity, by the cerebral cells, resulting in a perverted functioning and the establishment of a vicious cycle of cell injury or destruction which accounts for the progressive nature of the individual disease.

An occupation neurosis (writer's cramp) will illustrate that an overload on motor cells continued for a sufficient length of time will result in the establishment of a pathological condition of a degree directly in accordance with the accommodative power possessed by the cells involved, together with the time and intensity of the reaction.

The marked limitations characterizing brain cell proliferation indicates that cell identities may vary, without cell proliferation, in the direction of or away from a changing communal identity. However, a failure on the part of any brain cell group to maintain coordinated identities may be a fairly common cause of insanity, because of complicating reactions between involved cells and specific antibodies.

Epilepsy. I believe illustrates a type of insanity which has followed toxic or traumatic injury of certain cortical cells of the brain, with a resulting modification of their identity, and intermittent moderate or severe reactions to antibodies formulated against them by the somatic cells.

The practical treatment of atherosclerosis which I advocate is based upon the theories mentioned above, and my experience of six years in the treatment of these cases, following my interpretation of the factors involved in their initiation.

I have established for my own guidance the arbitrary rule that the normal systolic blood pressure for the adult at any age should be approximately 120 mm. with a pulse pres-

sure of 36 mm., and any considerable departure from this standard arouses the suspicion in my mind that all is not well with the patient.

The dictum that at 50 a systolic blood pressure of 150 and diastolic anywhere from 80 to 100 mm. is not a serious matter, is in my opinion a dangerous misstatement.

Patients are every day being lulled to their eternal rest by such teachings. There is a very great difference in the time within which atherosclerosis develops and progresses to a fatal termination. This depends upon the nature of a patient's arterial overload, and the manner in which his organism as a whole reacts to it.

I have learned as the result of many disappointments that without the full cooperation of the patient one cannot hope to achieve much in the treatment of these cases.

The three methods of management are ambulatory, detention in or about home or institution, and rest in bed as indicated.

Upon my first examination of a patient exhibiting hypertension I at once endeavor to determine his exact mental and physical condition, the amount of his native determination, and degree to which I may be able to secure his cooperation and that of his relatives and friends.

I withhold all food or put him upon a diet of fresh unpasteurized milk, raw fruit and raw vegetables and whole wheat bread, and maintain the specific gravity of his urine during the entire twenty-four hour period at or near zero, provided he has no kidney lesion. I direct that he take twice daily until further orders, ten grains of potassium iodid, eight minims of wine of colchicum root in a teaspoonful of a first class essence of pepsin. I instruct him to eat twice daily, morning and noon, and to take his medicine directly after eating.

His work, if an ambulatory case, must be arranged to come well within his accommodative powers. The diet is also to be determined by his metabolic requirements and the load his circulatory mechanism can carry without endangering the prospects of an arrest of his atherosclerosis.

For the best good of the patients the physician should have the spirit of a crusader

and the tact of an angel. I know of no one type of serious ill health in which so much can be promised, under careful management, and yet of all cases the atherosclerotics are the most difficult to manage properly.

It should be remembered that all hypertension patients are potential candidates for thrombus formation, embolism, and cerebral or other hemorrhages with all their inherent disastrous possibilities. I endeavor to protect the patient from these dangers by an early reduction of his blood pressure and the elimination of all primal causative factors, such as chronic infections, unbalanced diet, vitamin deficiency, overwork, and any complicating infections or diseases capable of detection while the patient is under observation.

I believe that in all hypertension cases there is, entirely aside from macroscopic anatomical defects, an increased permeability of the arterial tissues which may be local or general, or both in varying degree. There may arise also a dyscrasia, temporary or permanent in nature, which is sometimes a serious menace to the patient. The factors involved in bringing about these conditions are the same as those mentioned heretofore in discussing increased permeability of the placenta.

The weight at which we shall maintain our patient depends entirely upon the progress his disease has made and the amount of overload he is carrying. Roughly, whatever his age, he should be reduced to a weight correct for his height at age twenty-one, or if necessary ten or twenty per cent below that. He must be made to understand that every pound weighed beyond that for age twenty-one is overload, and will not alone require increased effort to carry it about, but by pressure, metabolic needs, and increased work of the heart to push the blood through it, multiply at an ever increasing rate the overload of the circulatory apparatus.

I have under observation a number of cases of atherosclerosis in which normal blood pressures have been regained while under treatment for periods varying from one to six years, and from the fact that the resumption of an active life in each

case has not been followed by an increased blood pressure, I believe that an arrest of the disease has been attained. However, the certainty of improvement in all cases of atherosclerosis, when absolutely held to the regime advocated by the writer, will reward any physician who will faithfully and enthusiastically enforce it.

The thorough and rapid manner in which many thrombi, emboli, and hemorrhages of the brain, eye and other organs may be absorbed while the patient is being starved over a period of from fifteen to twenty-five days will surprise and delight the physician in a considerable percentage of these serious cases. In this connection the specific gravity of the urine should be reduced and continuously maintained near zero, or that of water, as rapidly as in the given case will be compatible with safety. Tobacco, coffee, tea and spirits or other toxic substances should be absolutely forbidden.

I advocate fasting in the treatment of thrombus, embolus, and hemorrhage into the organs, because of the increased avidity of the blood and other tissues for misplaced or damaged cells and detritus during starvation. Enough has been said to indicate that the object of the treatment of atherosclerosis with hypertension is to reorient the identities of the cells of the arterial tree with the other cells of the body, in order that we may arrest the progress of the vicious cycle and the disease. Modification of diet or temporary starvation removes overload and facilitates reparative processes, and decreased antibody fabrication. The specific gravity of the urine is the indicator of the water reserves in the tissues of the patient. With a continuously maintained specific gravity of urine approaching that of water we are facilitating the elimination of autolytic antibodies from the blood through the kidneys.

The time required to reorient the pathological cell identities wherever possible, following the most careful regime, is according to the experience of the writer from one to four years, though in perhaps five per cent of cases this may be found to be impossible.

I have found that the intermittent or continuous administration of potassium iodid,

wine of colchicum root and pepsin as indicated for the individual patient seems to be of value in hastening reparative processes. Angina pectoris, in the opinion of the writer, follows marked interference with the blood supply of the heart, and is a definite cramp of the heart muscles due to oxygen deficiency and to the increased per cent of lactic acid and other toxins following defective drainage of the muscle. This muscle cramp varies in intensity inversely with the blood supply, and may be localized or general in character, and upon these two factors depends the seriousness of the condition and the nature and point or points of reference of the pain.

A limiting of the blood supply of the heart may follow inflammation or atheroma of the aorta in or about the ostia of the coronary vessels, or of the coronary arteries themselves, or a spasm of the musculature of these vessels, singly or by association. Eliminate the overload on the heart by rest in bed and immediate starvation, reduce specific gravity of urine to approximately that of water, eliminate foci of infection directly by minor surgery, if necessary, and indirectly by the rest, starvation, and later limitation of diet, and elimination of toxic matter by the degree of superhydration of the blood called for and indicated by the specific gravity of the urine.

A patient who had suffered intensely from angina pectoris for some three months, and apparently been near death several times in severe attacks, the number of which, minor and major, he had experienced being between sixty and ninety, following the regime outlined above, has steadily improved, and has had no attack since before the initial fasting more than fifteen months ago. I expect to secure an arrest of the disease by favoring the normal reparative processes in the heart and arterial tissues, reorienting any alienated cell identities to avoid spasm and progressive atherosclerosis, and by restoring an approximately normal coronary circulation through anastomosis.

The physician who essays to treat atherosclerosis with hypertension or any of its complications will do well fully to inform

the patient that he must conform absolutely to a severe regime for a long period of time, and that he will be required to practice enthusiastic self-denial at any cost to business or social obligations.

Atherosclerosis with hypertension complicated by nephritis, if of not too long standing, may be successfully treated as outlined above, by excluding salt from the diet and pushing the water with caution until improvement in the kidney renders it more permeable to fluids. The patient must be confined to his bed and held on a very low diet of fresh milk and fruits over a very long period, but with careful attention to details the patient and physician will be amply rewarded for their pains.

I am impelled to repeat without end that it is utter folly to attempt the treatment of diseases as serious as are those herein discussed, without the enthusiastic and wholehearted cooperation of all concerned for a very long time.

NEPHRITIS OF TONSILLAR ORIGIN

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It has long been in the mind of the writer that infections of the kidneys, as well as of many other of the internal organs of the body, are not primary in origin, but secondary to a focal infection in some other part of the body, which may be far removed from the kidneys.

For example: Infectious diseases, suppurative processes in teeth, tonsils, lungs, pleura, gall bladder, appendix, and so on—the infection being a metastasis traveling by blood stream or lymphatics, or both.

I wish to report the following cases which illustrate very clearly the conclusions reached as above stated.

Case 1. Mr. J. A. H., proprietor of a restaurant, aet. 36, and from whom I had removed an inflamed appendix in February, 1924, followed by complete recovery, came in to my office July 21, 1924, with the following picture: edema (general), low fever, accelerated pulse, systolic blood pressure 162, vision disturbed. Urine examination showed specific gravity 1.024 albumin in

moderate amount—about 2 per cent—many granular casts, acid reaction.

The edema was noticeable in the fundus, glottis, liver and spleen. There was no anasarca or effusion in to the serous cavities.

Patient complained of headache, dyspnoea, tinnitus aurium, and nausea with occasional vomiting attacks. There was marked tenderness over lumbar and kidney areas. Blood count showed a marked leukocytosis. Examination of the throat showed both tonsils enlarged and pus exuding from crypts.

On the night of July 24, 1924, patient had an eclamptic seizure, falling and receiving many resultant contusions. He became delirious and semicomatose. He was removed to St. Mary's Hospital, eliminative measures were adopted, and in a few days the crisis passed and he became quite rational. The fever subsided, pulse dropped, edema much less, vision improved, pain diminished, and he became what was considered a good operative risk.

August 10, 1924, a pair of greatly enlarged tonsils, full of pus, were removed. The acute symptoms disappeared rapidly and he was entirely recovered from his nephritis in a few weeks.

Case 2. A boy aet. 7 years was brought in having a sore throat, fever, some puffiness of lower eyelids, rapid heart, scanty and highly colored urine specific gravity 1.022, albumen 3 per cent. Leucocytosis.

Examination of throat showed tonsils so large as almost to close the pharynx, with pus exuding from every visible crypt. Luschka's tonsil was also greatly enlarged. After a few days of treatment to rid the tonsils of the hyperaemia, all three of them were removed. The boy recovered rapidly, acute symptoms subsided and the nephritic condition cleared nicely. There has been no return now nine months since operation.

In conclusion, I would say that not all cases of septic tonsils terminate in nephritis; neither are all cases of nephritis due to tonsillar infection; but I suggest that, in all cases of acute nephritis, one look for a cause in some remote as well as proximal portion of the body. Also in cases of localized infections look carefully for complications in distal organs.

SYSTOLE

God does not pay off every Saturday.—
Yugoslav Proverb.

He loses all who loses the right moment.
—Spanish Proverb.

Gie your tongue mair holidays than your
head.—Scotch Proverb.

An old friend is better than two new
ones.—German Proverb.

Knowledge is more than equivalent to
force.—Samuel Johnson.

All truth, in the long run, is only common
sense clarified.—Thomas Huxley.

Many days' work to the potter, only one
to the destroyer.—Indian Proverb.

However early you get up you cannot
hasten the dawn.—Spanish Proverb.

Where you are is of no moment, but only
what you are doing there.—Petrarch.

Though a thing has been false a hundred
years it cannot become true.—German
Proverb.

A good man may fall, but he falls as a
ball; an ignoble man falls like a lump of
clay.—Sanskrit Proverb.

A carriage and three thousand a year is
not the summit of the reward nor the end of
God's judgment of men.—Thackeray.

Solomon saith, "He that considereth the
wind shall not sow, and he that looketh to
the clouds shall not reap."—Francis Bacon.

And after all one does not do any better
in any year than make a friend. No man
makes seventy friends in a lifetime, does
he?—Francis Bacon.

DIASTOLE

Ten years ago we were using the Goddard
modification of the Binet Tests in examin-
ing juvenile delinquents. The questions el-
icited some quaint and curious answers,
which even at a late date, bear publication:

Question: What is the difference be-
tween a butterfly and a fly?

Answer: A butterfly, sometimes it
makes butter.

You can't catch a fly, and sometimes you
can catch a butterfly.

The butterfly won't light on people like
a fly will.

A butterfly is made out of a caterpillar;
the fly is just a regular fly.

A fly is not scared of you, and a butter-
fly is and won't come near you.

The butterfly has got bigger feet and
those things that come from their face.

A fly has got too many germs; he gets in
your house too much.

A butterfly has got blue wings a fly has
got black wings and a cow is brown. I
think they like each other unless they
fight.

Question: What is the difference be-
tween glass and wood?

Answer: Glass, it is made for windows;
it makes the houses look prettier.

Wood is made—I forgot what it is made
of. Glass is made out of coal, they say.

You can make tables and rooms out of
wood.

Glass is good for your eyes.

Question: What is a fork?

Answer: It's a handle with four brass
teeth on it.

A fork is what you shovel manure with.
Something that has prongs—what you use.

A fork is for to eat your potatoes with
when you are at the table with company.

Question: What is a horse?

Answer: A horse is what a man has
when he works.

To ride people.

Question: What is a cow?

Answer: He's got fur on, not much. We
eat cows; get milk from them. —C. S. B.

NEWS NOTES

Dr. S. D. Van Meter is spending his summer vacation in Europe.

Dr. W. C. Bane is visiting in England and other European countries.

At the recent meeting in Atlantic City, Mrs. F. P. Gengenbach was elected president of the Woman's Auxiliary of the American Medical Association.

Dr. C. T. Burnett is the newly-elected president of the Denver Tuberculosis Society.

Dr. Eli A. Miller of Denver was married June 7 to Miss Mayme Rosenberg.

Dr. Henry S. Reid has returned to Estes Park after spending several months in post-graduate study at Vienna.

Dr. James H. Leyda has left for Vienna, where he will take post-graduate courses.

Dr. Hubert Work delivered the Commencement address at the graduation exercises of the University of Colorado.

Dr. E. E. McKeown is spending his summer vacation in Europe.

Dr. Louis Packard is now associated with Dr. W. F. Brownell of Fort Collins, and during Dr. Brownell's absence abroad, will take care of his practice.

Dr. Allen Harris of Denver has returned from a month's vacation in California.

Any physician knowing of a case of tertian malaria in Colorado is requested to communicate with Dr. Franklin Ebaugh of the Colorado Psychopathic Hospital.

Dr. Maurice H. Rees has been appointed dean of the medical school of the University of Colorado. Dr. Charles N. Meader has been made dean emeritus.

At the recent meeting of the Wyoming State Medical Society, Dr. C. S. Bluemel presented a paper on "Secret Fear."

Dr. C. W. Thompson of Pueblo gave an address on "Dementia Praecox" at the annual meeting of the Arkansas Medical Society.

The following members of the State Society attended the A. M. A. convention at Atlantic City:

Allen, Kenneth D. A., Denver.
 Ames, John W., Denver.
 Ashley, Glaister Herod, Denver.
 Blotz, Byron B., Rocky Ford.
 Burdick, Ward T., Denver.
 Campbell, W. A., Colorado Springs.
 Carmody, T. E., Denver.
 Childs, Samuel B., Denver.
 Cochems, Frank N., Salida.
 Conant, Edgar F., Denver.
 Corper, H. J., Denver.
 Cunningham, Thomas Donald, Denver.
 Curfman, G. H., Salida.
 Delehanty, Edward, Denver.
 Earley, A. H., Denver.
 Finnoff, William C., Denver.
 Hall, J. N., Denver.
 Gengenbach, F. P., Denver.
 Jackson, Edward, Denver.
 McNaught, Francis H., Denver.

Mullin, William V., Colorado Springs.
 Packard, Louis, Ft. Collins.
 Roe, J. F., Denver.
 Sewall, Henry, Denver.
 Simon, Saling, Denver.
 Smith, Harry A., Delta.
 Thompson, David, Denver.
 Van Meter, Virginia C., Denver.
 Wasson, W. Walter, Denver.
 Webb, Gerald B., Colorado Springs.
 Williams, Sherman, Denver.

Dr. and Mrs. C. L. Lincoln of Denver are the parents of a son, born June 7.

Dr. W. F. Blanchard of Denver is spending his vacation on the Pacific coast.

Dr. A. M. Chase has returned to Denver from California.

Dr. C. B. Van Zant is visiting in eastern United States and Canada.

The Colorado General Hospital has been placed on the approved list by the Council on Medical Education and Hospitals of the American Medical Association.

Dr. W. H. Crisp is attending the convention of English-Speaking Ophthalmological Societies in London, England.

WILLIAM HENRY DAVIS

More than fifty years an active physician. More than fifty years a devout worshipper at the shrine of our profession. More than fifty years beloved by all. And now in possession of that which he earned while amongst us.

Dr. Davis, more intimately known as Dr. W. H. to his many friends, was born in Jennings County, Indiana, November 28, 1848. No doubt he grew up a perfectly normal, mischievous boy, loved by those who love boys and frowned upon by those who frown. He found time, even though hampered by the press of boy business affairs, of which all boys have plenty, to receive his primary education in the public schools. Having completed such, in a more serious mental attitude, he entered and graduated from Butler College, Indianapolis.

The teaching of medicine in his youth was not organized as it is today, and he carried on his studies under Drs. R. T. Brown, R. N. Todd and James Bigelow, his preceptors, finally attaining a proficiency which entitled him to the privilege of practice in 1871. Later he entered Bellevue Hospital Medical College and graduated in 1876. During these student years he was fortunate enough to possess the fortitude that enabled him to provide unassisted the necessary finances for his education and fortunately for those young medics who knew him in his mature years, to develop a keen sympathy for and a thorough understanding of the problems, the obstacles and discouragements of ambitious, struggling youth. He understood young men, appreciated their efforts for advancement, and to those who sought, he gave sound, practical, experienced, sympathetic counsel, as well as the frequently equally urgent assistance of this world's goods.

He came west to live with us in 1880, impelled by the necessity of regaining his health and entered the active practice of his profession, in which he earned and reached a prominent position, and of which he made both a financial and an altruistic success.

For years he occupied the chair of dermatology and genito-urinary diseases at Gross Medical College and later Denver and Gross College of Medicine. He became an emeritus professor in 1916. For a period of years he was president of the Colorado State Board of Health.

During his active practice he was an attending physician on the staffs of our various hospitals, both charitable and private, and was a member of the national societies of his profession. Masonry was attractive to him and he became a Knight Templar, also a Shriner of El Jebel Temple, Denver. He received the honor of the presidency of the Medical Society of the City and County of Denver.

He had his faults, even as you and I, and he had his virtues, and many of them. He lived life as he saw it, and as we saw what he lived; it was big, sincere, and charitable, conspicuous in the absence of petty jealousy and selfishness and the unhappiness which comes therefrom and singular in its charity toward the foibles and frailties of his fellow men.

C. E. COOPER.

MAGAZINE ARTICLES

NEW FACTS ABOUT CANCER. By Waro Nakahara, American Mercury, June.

WHEN ILLNESS IS IN THE HOME. By H. Ad-dington Bruce, Good Housekeeping, June.

PREPARATION AND ADMINISTRATION OF GLUCOSE SOLUTION. By Wm. J. Dieckmann, M. D., and Jos. Kinsey, R. N., American Journal of Nursing, June.

CURING DISEASE BY SUNLIGHT. By James A. Tobey, Current History, June.

SURVEY OF FOOD HABITS IN AN HUNGARIAN MINING TOWN. By Irma H. Gross, Journal of Home Economics, June.

THE MEDICINE SHOW. By Thomas J. Le Blanc, American Mercury, June.

HANDMAIDS OF MEDICINE. By Lawrence W. Baker, Atlantic Monthly, June.

SOUR MILK—A PROTECTIVE FOOD. By E. V. McCollum and Nine Simmonds, McCall's, July.

A LABORATORY FOR THE STUDY OF PLANTS (Bryce Thompson Institute for Plant Research.) Review of Reviews, June.

PLANTS AND PLANT PESTS. By Charles L. Marlatt, Atlantic Monthly, June.

SEX AND GENIUS. By Alice Beal Parsons, Yale Review, July.

THE SCIENTIFIC IMPORTANCE OF THE WHITE INDIANS. By Reginald G. Harris, World's Work, June.

CAN HOSPITALS BE HUMANE? By Winfred Rhoades, Survey, June 1.

THE PUBLIC RESPONSIBILITY OF THE BAKER OF BREAD. By George S. Ward, McClure's, June.

THE MEANS OF OVERPOPULATION. By E. M. East, World's Work, June.

DON'T LET NERVES BLUFF YOU. By Grantland Rice, Colliers', June 13.

MALNUTRITION AND THE MENTAL DEVELOPMENT OF CHILDREN. By William R. P. Emerson, McClure's, June.

NEW BOOKS

PREPARATION OF SCIENTIFIC AND TECHNICAL PAPERS. Williams and Wilkins Co., Baltimore. \$1.50.

THE LIFE OF SIR WILLIAM OSLER. By Harvey Cushing. Svo. New York; Oxford University Press. Two volumes. \$12.50. Biography of a great medical scientist.

THE MORTALS. By C. MacLaurin. 12mo. New York; George H. Doran Company. \$2.50. Great characters in history from a physician's point of view.

HOW TO LIVE LONGER. By Eugene A. Heilman. 12mo. Philadelphia; Heilman Publishing Co. Practical talks on the causes and prevention of heart disease, tuberculosis, Bright's disease and cancer—the chief causes of death.

EXPLORATIONS AND FIELD WORK OF THE SMITHSONIAN INSTITUTION IN 1924. Pamphlet. Washington, D. C. Smithsonian Institution. The record of field work in the Rockies, South-eastern New Mexico, the Central Andes and other places, with many illustrations.

REPORT OF THE CAMBRIDGE HEALTH EDUCATION CONFERENCE. 12mo. New York; American Child Health Association. Report of the conference held at the Massachusetts Institute of Technology in June, 1924.

THE NEW PSYCHOLOGY. By E. Boyd Barrett. Svo. New York; P. J. Kennedy & Sons. \$2.75. How new psychology aids and interests every one.

THE PERSONAL EQUATION. By Louis Berman. 12mo. New York; The Century Company. \$2.50. The secret of man's frailty and genius.

ANIMALS LOOKING INTO THE FUTURE. By William Allison Kepner. 12mo. New York. The Macmillan Company. By a Professor of Biology in the University of Virginia.

GENETIC STUDIES OF GENIUS. By Lewis M. Terman and others. Svo. Stanford University Press. Stanford University, Calif. Volume I. Mental and Physical Traits of a Thousand Gifted Children.

THE COMING LIGHT. By Mary Bruce Wallace. 12mo. New York; Dodd, Mead & Co. \$1.25. A sequel to the author's previous work entitled "The Thinning of the Veil." A record of psychic experiences.

BEHAVIORISM. By John B. Watson. Svo. New York. The People's Institute. A series of lectures bound separately in portfolio form.

DRAMATIZING CHILD HEALTH. By Grace T. Hallock. Svo. New York. Child Health. \$1. A book of health plays, with chapters on the writing, the producing and the educational value of dramatics.

SEWAGE DISPOSAL IN INDIA AND THE EAST. By G. Bransby Williams. 12mo. New York. D. Van Nostrand Company. A manual of the latest practice applied to tropical conditions.

AN EPOCH IN LIFE INSURANCE. By Haley Fiske and Raymond V. Carpenter. 12mo. New York; Metropolitan Life Insurance Company. Thirty-three years of administration of the Metropolitan Life Insurance Company.

MEDICAL SOCIETIES

COLORADO OPHTHALMOLOGICAL

The Colorado Ophthalmological Society met on Saturday, April 18, 1925, at the new medical school building of the University of Colorado, Dr. W. C. Finnoff presiding.

The regular meeting was preceded by a dinner in the doctors' dining room of the Colorado State Hospital.

F. R. Spencer and C. L. LaRue, Boulder, presented a man aged thirty-six years who eight years previously had been operated upon for bilateral congenital ptosis by the Tansley-Hunt method.

W. C. Finnoff, Denver, presented a man aged twenty-seven years who had come on account of partial failure of vision, which had begun about a year and a half previously with a distorted appearance of images seen with the right eye. The patient had been almost frozen to death a month before he had first noted failure of vision. At the posterior pole of each eye were numerous changes in the retina. Discussed by W. H. Crisp.

Dr. Finnoff also presented a man aged forty-one years who had come on account of recent disturbance of vision of the left eye, the vision of the right eye having been lost a number of years previously. The retina in the whole upper nasal quadrant of the fundus was detached and came forward as much as twelve or more diopters in the peripheral portion. A salmon-colored mass was visible in front of the detached retina. The diagnosis was tumor of the choroid.

Dr. Finnoff also demonstrated the rather unusual pattern of a partially developed cataract as viewed through the corneal microscope.

W. H. Crisp, Denver, reported a case of exophthalmus with pronounced edema of the eyelids, in a child of eighteen months, and apparently due to ethmoiditis. The case was diagnosed as probably one of ethmoiditis with edema of the deep orbital tissues, perhaps purely toxic in character, or associated with a bulging of the lamina papyracea. In the course of a day or two the condition rapidly improved.

WM. H. CRISP, Secretary.

DELTA COUNTY

The regular monthly meeting of **The Delta County Medical Society** was held in Paonia Friday evening May 29th. Dr. and Mrs. Hazlett entertained the doctors and their wives at a delicious dinner.

The scientific program was at Dr. King's office. The members present were: Dr. Hick, president, presiding; Drs. Miller, Hazlett, Copeland, McArthur, Myers, C. H. Burgin, McConnell, Aust, J. H. Burgin, McClanahan, Lewis, Erigh, and King.

In the absence of Secretary Smith, Dr. Bast acted as secretary. It was carried that the secretary should write to the American Birth Control League asking to have Delta placed on the itinerary of Dr. J. F. Cooper, who is to make a trip through the country lecturing on Birth Control.

Dr. Hazlett gave an interesting report on a case of Bell's Palsy. This was discussed by Dr. McClanahan. Dr. J. H. Burgin read a very good paper on Light Therapy, which paper was dis-

cussed by Drs. McConnell, Miller, Hick, McClanahan and Bast.

In June the Society will meet in Delta.

LEE BAST,
Secy. pro tem.

OTERO COUNTY

The Otero County Medical Society had as its guests, at the regular May meeting in La Junta, on May 14th, the members of the Prowers County Medical Society.

After a delicious banquet served by the Harvey House, the members were invited up to the Santa Fe Hospital where the following program was very much enjoyed:

1. "Stasis in the Ascending Colon Simulating Appendicitis," Dr. T. D. Cunningham, of Denver.

2. "Acute Empyema in Children," Dr. George B. Packard, Jr., of Denver.

The last meeting of the year will be held in Rocky Ford on the second Thursday in June.

DR. B. F. BLOTZ,
Secretary.

THE PUEBLO CLINICAL AND PATHOLOGICAL SOCIETY

Met at the Commerce Club on the evening of April 15, 1925, for lunch and scientific program. Dr. J. W. Gothard was appointed critic.

Dr. W. F. Singer discussed some cases of cardiac pathology, prefacing his reports by relating some recent experiences in southern California and Tia Juana, returning from the latter place somewhat to the good.

Case 1. Had high blood pressure and high pulse pressure—a case of nephritis.

Case 2. One at breaking point—a case of arrhythmia.

Treatment of both cases was absolute rest in bed, starvation, large amounts of water, sugar ad lib. if acidosis. Prognosis favorable.

Dr. J. F. Snedec reported a case of acute cholecystitis. The patient, Mrs. J., aet. 22, married, three children. Family history negative. Personal history: multi para 2, otherwise negative. Previous health very good. No history of previous infectious diseases, except measles and whooping cough. Bowels regular, menses regular—every 28 days, flow 3 to 4 days.

Present complaint (Feb. 22, 1925) began the night before with intense pain in right upper quadrant of abdomen along costal margin with intense and persistent vomiting. Vomitus consisted of bile and mucus with no relief from pain, which has persisted throughout the day and is now fairly well localized in region of the right kidney and external thereto. Vomiting continues. First seen in the morning: temperature 98, pulse 60, of good quality and regular. No increase of liver dullness determined. Seen again in the afternoon: temperature 99, pulse 76, regular and good volume. Heart and lungs negative. Hepatic dullness increased, margin of liver extending two fingers breadth below costal margin. In center of enlarged portion of the liver a small mass about the size of a walnut could be palpated. Complete outline not possible, as mass was apparently fastened to liver. Slight pressure over the mass caused considerable pain with almost immediate nausea and vomiting.

Morning blood count showed W. B. C. 12,000—polys 66 per cent.

Afternoon blood count showed W. B. C. 16,800—polys 76 per cent.

Catheterized specimen of urine negative. Diagnosis acute cholecystitis. Immediate operation

recommended and consented to. Cholecystectomy the evening of February 23, 1925. Findings were a severe acute hepatitis with greatly distended and acutely inflamed gall bladder, with a stone the size of a filbert obstructing the cystic duct. Convalescence satisfactory.

Dr. E. H. Steinhardt reported a case of aneurysm of the abdominal aorta in a man at the state hospital, aet. 50—and 30 years a deaf mute. No aneurysmal symptoms until three months previous when he complained of severe pain in right foot and toes. Three weeks prior he had influenza. At time of crisis had nausea, vomiting, extreme prostration, followed by death. Autopsy showed calcareous degeneration of the right iliac artery. The doctor showed the specimen—a sacculated aneurysm about the size of an orange.

Dr. C. W. Streamer reported two cases of exfoliative dermatitis, both following arsphenamine, mercury, etc. Characterized by petechial spots over body, general edema and exfoliation.

Both cases responded to treatment by thiosulphate and with very satisfactory results.

Dr. T. A. Stoddard gave a book review of *Modern Treatment and Medical Formulary* by Campbell, F. A. Davis & Co. publishers. There is no attempt made to classify different types of diseases nor to apply any of the long list of formulae to any special type of disease. A sort of "shot-gun" proposition. The doctor thinks there is nothing in the book to commend it to the thinking and inquiring medical man.

Met at the Congress Hotel May 13, 1925. After dinner the meeting was called to order by President Wallace.

Dr. T. A. Stoddard reported a case of "Ununited Fracture of Femur." The patient, a young woman, aet. 17, hurt in auto accident on Feb 13, 1925. Fracture in middle third. Apposition after reduction seemed good under fluoroscope and x-ray. A month later there was no union. A second attempt at reduction proved to be a failure also. X-ray showed overlapping of fragments of 1½ inches. On May 10th an open operation was performed. This revealed a piece of bone interposed between fragments. The loose bone was removed, ends of bone brought into line and plated with a heavy plate with two screws in each end.

The doctor said that plating is not popular but in this case was the procedure of choice as the medullary canal in one fragment was closed and not suitable for autogenous or other bone splint.

Some of the causes of non-union or delayed union—which happens in about one per cent of fractures—are syphilis, diabetes, too great elevation of limb, or interference of blood supply of bone by the broken fragments or other interference as result of accident.

Dr. Ray R. Taylor reported a case as being that of "Diaphragmatic Hernia." Patient a Syrian, aet. 61, a store keeper. Complained of feeling of tightness in left chest; a good deal of indigestion, shortness of breath—especially after eating. In 1924 had chills, fever, cough, dyspnoea, and fullness in upper abdomen. There was loss of weight, no chest expansion. Dullness in left chest from seventh rib down. In right chest was globular enlargement. Heart and glandular system negative. Blood pressure 110 and 60; Wasserman negative. A tympanic area through diaphragm into right chest. Demonstrated by x-ray and barium meal at different stages; at 18 hour period the barium was found

in colon, in the chest cavity.

Cases of diaphragmatic hernia are not rare—many are without symptoms, and may remain dormant for years.

Dr. J. W. Thompson reported a case of "Iridocyclitis from Focal Infection".

Mr. J. D. K., age 58, first seen June 11, 1924. Left eye became inflamed six weeks ago; a severe pain above the eye and through the temple. Unable to sleep at night because of the pain. There has been a gradual loss of vision during this time until at present he is unable to distinguish objects. General health has not been good. Says he had a "nervous break-down" six weeks ago. Blood pressure, systolic 160; diastolic 90. Urine negative; blood Wassermann negative; reflexes seem normal.

Examination: vision right eye 20-30 (?); left eye counts fingers at ten inches. There is marked ciliary injection; cornea clear; iris muddy; small hypopyon bottom of anterior chamber; pupil small; yellow exudates in pupillary space. Pupillary margins adherent to anterior capsule of lens by posterior synechia. There is no fundus reflex; no view of fundus; tension is slightly below normal. In the right eye, external examination and fundus are negative.

The examination of the patient's mouth by a dentist revealed two abscessed teeth which were extracted after a good deal of persuasion. There was immediate improvement in the eye and gradual absorption of the exudate in the pupillary space with return of normal vision, July 5, 1924.

On August 12, patient again returned with marked ciliary injection, haziness of vision and severe pain. Examination of his mouth showed one more abscessed tooth which was extracted, the eye gradually quieting down and vision returning to normal. There has been no recurrence of the inflammation since the extraction of the last tooth. Patient last seen November 8, 1924, vision right eye 20-30; left eye 20-15, all signs of inflammation having disappeared. This is without a doubt a clear cut case of iridocyclitis caused by abscessed teeth.

R. C. ROBE, Reporter.

Poet: My wife said this last poem of mine caused her heart to miss a beat.

Editor: Rejected. We don't want anything that will interfere with our circulation.—Exchange.

Doctor: I will give you a local anesthetic, if you think it necessary.

Railroad Man: Well, doc, if it's going to hurt I reckon you had better cut out the local and run me through on a sleeper.—Kansas City Times.

Bystander: "They're fightin' 'cause Bill said Alf's wife was cross-eyed."

"But Alf's a bachelor, ain't he?"

"Yes, but the principle is wot made Alf wild."—London Opinion.

A young Kansas City physician was asked by his hostess one night recently why he did so very much charity work. "Well, madam," replied the doctor, "I don't mean to."—Kansas City Star.

First Father: My son has made the varsity crew.

Second Father: My boy drew the picture that got his college paper suppressed.—Life.

Colorado Medicine

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EDITORIAL NOTES AND COMMENT

Boulder County Number

This issue of Colorado Medicine is published by the Boulder County Medical Society under the associate editorship of Dr. H. H. Heuston.

Lost Motion

Osler wrote some years ago, "Captivated by the theories of Metchnikoff, we have been for some years on the crest of a colonic wave." That wave is now past and almost forgotten, but we are by no means hidden in a trough. We are triumphantly on the top, for a time at least, of a focal infection wave, but with a gland wave about to swamp us.

Thus does medicine progress—or, shall we say, continue?

We have presented to us oceans of literature, much of which is poor, much mediocre, and a small part epoch-making. It is the last that gives the cue to the former. No sooner has a MacKenzie told us some fundamental truths about cardiac mechanism or a Billings about focal infection than we are blinded in a haze of literature based upon experiment, observation or theory. It is to grope our way out of this haze that we devote the next few years with alternating periods of enthusiasm and misgivings, often to the good, but at other times, to the detriment, of our patients. Too often it is "much ado about nothing." Occasionally a rare scientific gem emerges from the mill, which will serve medicine in the future as

similar truths have in the past. And after all the hubbub and shouting it is the same MacKenzie who attempts to quiet the waters by telling us that hearts can be successfully diagnosed and treated in the vast majority of cases without the use of the electrocardiograph, and the same Billings who warns us that a good doctor is the best that has been so far developed for the diagnosis and treatment of 90 per cent of all conditions, and that the specialist is not really needed so much as we thought.

Enthusiasm is a good thing, but so is conservatism.

American medicine is doing much, and we believe is progressing fairly rapidly; but there is much lost motion. It appears that a Hoover would not be amiss in medicine.

M. E. M.

Clinical Values

Physicians of the past generation were close observers—many of those who rose to leadership were remarkably so. They were compelled to rely solely on the five senses, and these were developed to marked acuteness. Moreover, those powers were focused directly upon the patient. They had no laboratory to assist. Responsibility rested heavily upon them.

We are emerging from a generation in medicine that has been so prolific in discoveries and new methods, during which time the medical mind was so occupied by what was taking place on all sides, that medical

thought of the past received scant attention.

One by one the remedies of the past, though used empirically and neglected during the "scientific age", because they were used empirically, are being cleared up and again put in good standing.

Digitalis would hold its own in any age. Quinine has been unquestioned as a malaria remedy. However, we questioned its right to be classified as a tonic, because there was no scientific test to prove it. Even cod-liver oil lost much of its prestige. Arsenic continued to be used, but with apologies.

We are escaping from this period of therapeutic nihilism, not alone because we can give pure scientific reasons for what we do, but because we are learning that clinical observations are as reliable methods as many that are conducted in the laboratory.

M. E. M.

Ophthalmologist or Optometrist?

Dr. James M. Patton's paper, read at the recent meeting of the American Medical Association, entitled Oculists or Optometrists—Which? is a most timely article. So brazen are the claims of many optometrists and so widespread is their advertising that not only the public as a whole naturally assumes their capability, but even physicians are unwittingly permitting them to examine the eyes of their patients. Oculists have been fair with the optometrists and slow to criticize; but now since certain of the latter, in various states, are seeking legislation restricting well recognized and well deserved rights of the former, has not the time come to let the people know both sides of the question?

Newspaper advertising is their stronghold and it usually is a one-sided affair, praising the good of a given article, but omitting the bad. So the optometrists boast of their successes, but never mention their failures. These "failures" are later found in the oculist's office; but often they come too late, having trusted the optometrists' glasses while the vision gradually failed from the overlooked, but constantly progressing pathology. Also, their advertising is misleading. As an example, they would have the reader believe they are especially skillful, because they "do not use drops", while the fact is they are so

unskilled that the law does not permit them to use "drops".

Some of them claim to refer the patient to an oculist when the eye is diseased. However, I have never seen this stated in their advertisements, nor have I had many such referred patients. But granting their willingness to do so, this presupposes their ability to say just when an eye is diseased. Is not the assumption presuming too much when the scientific training of the average optometrist is considered? One text book of ophthalmology describes approximately one hundred diseases and pathologic conditions of the retina and choroid alone. The average optometrist knows nothing of the diagnosis and treatment of these conditions, yet all are possible in eyes coming to him for relief. Let it be remembered that functional disease of the eye and pathology too often go hand in hand, for one to be corrected and the other ignored.

Should not the public be reminded that an organ as delicate as the eye should be entrusted only to those most skilled in its care? The best is none too good. Finally they should know that oculists have, for years, been caring for the human eye rather successfully, including its refraction, and that nothing new nor nothing of importance has been added to the art of safeguarding or improving vision by the advent of optometry.

C. L. L.

Board of Medical Examiners

The Colorado State Board of Medical Examiners is trying to serve the entire state to the best of its ability. The secretary-treasurer, Dr. David A. Strickler, for years has been chairman of the Committee on Public Policy and Legislation of the Colorado State Medical Society and he has also served for many consecutive terms as president of the Federation of State Boards. His long experience as a member of our board has enabled him to become extremely efficient in managing its affairs. However, there are many physicians throughout the state who give very little, if any, attention to the work of the board, when their support would often be very helpful. Suggestions, from time to time, will be very acceptable and especially does

this apply to constructive criticism. With many cults extremely antagonistic to any and all types of scientific achievement, opposing the activities of the board, it is an easy matter to say, "Let George do it". The right word spoken at the right time to critics will often stop criticisms which cannot be answered by members of the board. F. R. S.

Standardization of Otolaryngology

The American Board of Otolaryngology held a meeting in Atlantic City the last week of May and another one in Philadelphia the first week of June. Many otolaryngologists from all over North America took the examinations and it is hoped that others will qualify in order that they may acquire the certificate of the Board. This is an effort upon the part of the American Otological Society, the American Laryngological Association, the American Laryngological, Rhinological and Otological Society, the American Academy of Ophthalmology and Otolaryngology and the Section on Laryngology, Otology and Rhinology of the A. M. A. to standardize the practice of Otolaryngology, and to say who is and who is not qualified to be termed a specialist. The efforts of the Board are very timely, especially at a time when so many practitioners of the healing art, of all schools, assure their patients that they are abundantly qualified to do any and all kinds of ear, nose and throat surgery. Patients have a right to know who is and who is not reasonably well qualified by reason of graduate training and experience to care for members of their family. F. R. S.

Honesty in Medical Practice

Some years ago the American Medical Association, through the agency of a committee of high minded men, began the task of cleaning house, so to speak, from the inside out. This was by way of classification of our medical schools to the end that many of the unfit have been eliminated and others have raised their standards to the point that they are now giving to their students an adequate training for the practice of medicine. Witness now the long delayed reaction to this good example by the law schools of this country in their attempts to standardize admis-

sion requirements to their institutions, the first step in the guarantee to our citizenship that it shall have really competent legal help when needed. Our various states have attempted in their medical practice acts to define what shall constitute the practice of medicine and surgery and the courts are busy trying to define what constitutes malpractice in medicine and surgery. All of these sundry attempts to regulate the conduct of our medical practice can at best reach but a few angles of the situation as compared with any effort to apply the Golden Rule in the daily contact with our patients.

Considering that health is our only guarantee of happiness in this world, and that happiness should be the birthright of every individual, is it not clear that a man who is engaged in the work of conserving health, or of restoring it when it has been lost, is a man who is engaged in a profession that is truly vitally different from any other profession? We grant that a man must make his living in this profession, take care of his family and provide for the future. For this reason we need to care for every ease that comes to us, regardless of whether or not we know definitely what the matter is or what may be the appropriate treatment. If nature is kind and the patient gets well, the physician is often heard to make use of that none too creditable term of "getting by with it". If on the other hand the patient does not get well, but continues on the road of ill health, due the fact that he is in the hands of an incompetent physician, he suffers through a lack of honesty in medical practice. The physician across the street has had some special training in this patient's ailment and could have quickly remedied his trouble, but he must be kept in the dark else the first man will lose his patient. The fact is he will lose his patient in the end, first because he is not honest with his patient and second, because he and the other physician are not honest with each other. The public is not dense. It is well aware of just such practice as this; and this is evidenced by the considerable number of people who change doctors in order to get the help that one physician could not give and would not help them find. The result is an increasing loss of confidence of

the public in our regular medical profession.

Another form in which honesty can play an important part is in our statements to our patients and their relatives as to the nature of disease and the relative value of our various therapeutic agents. We accept the fact that there is a large class of sick people who are not helped by being told too much about their illness; but for the most part neither patient nor physician will suffer from the most complete statement of the various phases of the patient's malady. It is often said that a physician to be successful must always do something for his patient. How many of us have the courage to walk out of the house, leaving no medicine for the patient when we know full well that no medicine is needed? How many have the courage to tell the mother of a baby that occasionally has convulsions to hold the baby quietly on her lap until the convulsion is over rather than leave her with the universal idea that the baby must be gotten quickly into a hot mustard bath in order to save its life? Such practice in its ultimate analysis is little short of hypocrisy. It is doing nothing for the patient and serves mainly to impress the relatives with the physician's ability in this condition. In the final summing up, the many little things that we as physicians do, which have nothing to do with the welfare of our patients, but rather impress him and his relatives with our ability "to handle the case", are after all but types of practice that will not square with the Golden Rule. If we but stop to think, the

placebo, which we often mistake for a remedy, is no less to be condoned than the so-called spinal adjustments for which some of our other faiths are famous. The only difference is that the physician knows better, the other one doesn't. If we are to enjoy the full confidence of the public and share the rewards that will come from that confidence, we must rid our profession of the many little practices that are helping to destroy this confidence. We have been told that it can't be done. It can't be done by one man, but it can be done to a most beneficial extent if we will but begin to eliminate a little here and a little there. Absolute honesty with our patients, our colleagues and above all, with ourselves, would in time bring the practice of medicine more to that of a science than that of an art.

After all, this idea is nothing more than the one that is now pervading all forms of business. We are hearing much of truth in advertising, dependable merchandise, satisfied customers and the like. The usual practice of medicine is of necessity a commercial enterprise in which the ordinary rules of business apply quite as much as they do in entirely different lines. The live merchant who does not have in stock what his customer wants quickly arranges to get it for him. What about the physician who does not have his stock up to date? He resorts to substitution and the patient suffers because he does not get what he expects for his money.

Of course this is all purely idealistic and it won't work, but—

H. H. H.

A BRIEF DISCUSSION OF HEAD INJURIES*

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This is a very important subject, inasmuch as the mortality rate of head injuries is more than 50 per cent, as is shown by the study of large series of cases treated in hospitals of the cities.

Injuries to the scalp itself are usually not of a serious nature, and yet when treated carelessly dire consequences may follow. The scalp consists of five layers, namely,

skin, superficial fascia, muscle, loose areolar tissue (known as the dangerous area), and the pericranial layer. Puncture wounds which carry infection into the area of areolar tissue may be serious because infection spreads rapidly in this region when there is poor drainage. Emissary veins connect this region with the venous sinuses within the skull, thus forming a possible route for infection to reach the meninges. All scalp injuries should be carefully cleansed, treated

*Read at the regular meeting of the Boulder County Medical Society, May 8, 1925.

with some antiseptic, and free drainage established, thus the dangers above mentioned are best prevented.

Fractures of the skull bones are in themselves as easily handled as fractures in any other part of the body, but the thing of vital importance is to determine to what extent the tissues within the skull have suffered. The brain may be damaged, either with or without bone injury.

The brain is subject first to so-called concussion—a condition in which there is most likely microscopic injury to nerve cells. Symptoms are those of unconsciousness of a shorter or longer duration. Patient will usually respond in some degree to external stimuli and the degree of response will increase as time goes on in favorable cases. A more serious condition is that of brain compression. This may be the result of the pressure of depressed fractures, hemorrhage from the meningeal vessels or from venous sinus injuries, or from a general swelling of brain tissue, the result of an increased secretion of cerebrospinal fluid. We are all familiar with the fact that unconsciousness followed by a period of consciousness and this followed by another period of unconsciousness which becomes deeper and deeper, means serious compression most likely from hemorrhage. If we hope to improve the treatment of head injuries, methods of determining increasing compression before the condition becomes serious must be devised.

Cases of concussion, which are showing rapid improvement, usually need no other treatment than rest and watching for a twenty-four hour period. Patients with head injuries, who are in severe shock, require rest, stimulation, cold to the head, with the hope that they will recover from the shock and then it can be determined whether or not any operative procedure is required. A certain number will die during this period, but any operative procedure at this stage only serves to decrease the chances of recovery. If improvement follows the first shock, then every means known must be used to recognize increasing compression, because if it can be determined that there is

increasing brain pressure, operative procedures offer a good chance to help the patient. If this condition is not recognized, the patient goes into shock again as the result of compression, and all treatment becomes hopeless. During this interval after the improvement from the first shock, pulse, blood pressure and pressure of spinal fluid should be watched closely. Some believe that if the blood pressure and pulse rate are recorded every fifteen minutes it will give an index to the amount of brain pressure. That is, if the blood pressure curve is steadily rising and the pulse rate curve is going down, it is evidence of pressure, and that if this continues, suddenly the pulse will commence to rise and the blood pressure decrease and the patient soon reach the third and hopeless stage. Other methods used are the study of the eye grounds, changes in which often come too late to be of service. Spinal puncture is used both to determine the degree of compression and also to relieve the pressure. In the hands of a number of men, this method has proved very effectual. Some very good men believe there are certain dangers in doing spinal puncture, which hardly justifies its use. Others believe that with proper precaution, namely, measuring the pressure of fluid and its slow removal when the pressure is high, it can be done safely and with great benefit.

The greatest number of serious head injuries will be saved by the careful treatment of shock in the first part and the abstinence of all active treatment during this time; then the using of every method known to determine the approach of increased intracranial pressure. If it is determined that this condition is coming on, this must be relieved before the patient reaches a hopeless state. The treatment is either decompression operation with or without drainage of ventricles or the removal of spinal fluid by the means of spinal puncture.

All agree that compound fractures of the skull and depressed fractures should be operated as soon as the patient's condition justifies. This is true also of hemorrhages from the meningeal arteries.

USE OF PNEUMOTHORAX IN THE TREATMENT OF ACUTE TUBERCULOUS PNEUMONIA

A Preliminary Report

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Definition: Acute tuberculous pneumonia, also known as phthisis florida, galloping consumption, pneumonic phthisis or caseous pneumonia, is manifested by a pneumonic consolidation, in which the tubercle bacillus is the exciting organism.

Only a small portion of pulmonary tuberculosis is pneumonic in type; it is more common in males than in females, but in children it is more common in females, as is also the case in the negro race. It is always secondary to tuberculosis elsewhere, not necessarily pulmonary.

It is of two types:

- I. Broncho-pneumonia.
- II. Lobar pneumonia.

Course: The onset is usually very sudden, progressing rapidly to fatal termination in a few weeks to a month in the majority of cases. In children it is fatal in a very short time or becomes subacute. Occasionally the acute process will subside and be followed by chronic ulcerative type of pulmonary tuberculosis.

Tuberculous broncho-pneumonia: In children it may follow whooping cough or measles, more often in females or in those with an hereditary predisposition, or it may be the terminal event in a chronic ulcerative type of pulmonary tuberculosis due to aspiration from a cavity.

Pathology: There is usually marked caseation of the tracheo-bronchial lymph nodes, which may be the primary focus. In children it is practically always bilateral; it is often secondary to peribronchial tuberculosis. It is generally limited to the surrounding portion of the lobe or to all of the same lung. On section, the lung surface is moist, studded with miliary tubercles arranged around the bronchi like a bunch of grapes. If the patient survives long enough, there are areas of caseation surrounded by gelatinous areas but no definite fibrosis.

Symptoms: The onset may be abrupt, with chill, sudden rise of temperature to 102 de-

grees or 104 degrees; the patient rapidly becomes prostrated. Occasionally the onset is with hemorrhage—rather uncommon. Frequently the onset is more insidious with nausea and vomiting, malaise, pain in the limbs and back, slight cough, growing worse, and only a slight elevation of temperature, gradually rising, soon becoming high and remaining so. Occasionally the temperature is of the intermittent type. The cheeks are flushed, the skin is hot, the patient wastes rapidly, there are frequent chills, followed by drenching sweats, evidence of the toxemia. The cough, which may have been absent at the start, increases gradually. The sputum, which may have been scanty, becomes more and more abundant; mucoid at first, later becoming yellow or green and purulent, and may or may not be blood-streaked. As a rule, it is heavily laden with tubercle bacilli, but in one of our cases tubercle bacilli were not found in the sputum until late in the pneumonic process. Ordinarily the disease is fatal in a few weeks to a few months.

The physical signs are those of a bilateral bronchitis with diffuse infiltration at one of the apices; this infiltration may be high in one axilla or the other. As the disease advances, definite signs of consolidation become apparent, always most marked in the upper portion of the lung, at least in the apex of the lobe involved. The rales are of a fine, crackling character brought out only by cough. If the patient survives for a sufficient length of time, signs of cavity or multiple cavities appear.

Tuberculous lobar pneumonia: This form is less common than the bronchial type. It may be acute, subacute or chronic ulcerative in character. The primary focus is usually an old chronic ulcerative type of pulmonary tuberculosis of the apex, but may be extrapulmonary.

Distribution: (1) a portion of lobe; (2) entire lobe; (3) an entire lung. In an extensive case the entire lung may be replaced with

caseous pneumonia or gelatinous exudate. On section, the diseased portion shows a dry, smooth, airless surface, grey to yellow in color, with the consistency of cream cheese, or there may be a granular or mottled appearance due to areas of caseation alternating with hyperemic areas of pulmonary tissue. Formation of fibrous tissue is lacking and the lung breaks down, forming ragged cavities.

Symptoms—The onset is as abrupt as in true lobar pneumonia, usually beginning with chills, severe pain in the side, rapid rise of temperature and pulse, harrowing cough, often unproductive at first, but soon producing profuse expectoration. The sputum is blood-streaked and at times consists of almost pure blood. The diagnosis of lobar pneumonia is commonly made; but as the course is prolonged, no crisis occurs, temperature becomes hectic in type, sputum gradually changes to muco-purulent, and on examination is laden with tubercle bacilli, chills and sweats persist throughout the course of the disease, emaciation is very rapid, the correct diagnosis is evident.

The termination in a large per cent of the cases is fatal from one to three weeks. In some instances the disease becomes subacute, and may last from one to three months. If the area involved is small, there may be a temporary arrest of the process with the subsidence of acute symptoms, and the disease progresses as an ulcerative pulmonary tuberculosis.

The physical signs are those of a dense infiltration or a complete consolidation of an upper lobe, in a few instances of the entire lung. Tactile fremitus is increased, the voice sounds are exaggerated in the involved area, many crackling and fine moist rales are heard, while the breath sounds are suppressed and bronchial in type. The involvement always includes the upper lobe. It is never limited to a lower lobe, but sometimes may involve both the upper and lower, or portions of both lobes. (Norris and Landis.)

The differential diagnosis. It is difficult at first and an incorrect diagnosis of true lobar pneumonia is nearly always made.

Lobar Pneumonia

1. History—

History of tuberculosis negative

2. Onset—

Chills, rapid rise of temperature and pulse.

3. Cough—

Appears early, painful, persistent.

4. Sputum—

Blood tinged to prune juice.

5. Pain—

Sharp, stabbing pain on cough, may be referred to abdomen, usually in lower chest.

6. Breath Sounds—

Suppressed, bronchial in type.

7. Duration—

Short, terminating in crisis if not fatal.

8. Herpes—

Present in majority of cases.

9. Blood—

Leucocytes are high with high per cent of polymorphonuclears.

10. Limitation of Lesion—

May involve portion of lobe, whole lobe or several lobes; may be unilateral or bilateral, but most commonly limited to one lower lobe.

11. Cyanosis—

Common in varying degrees.

Tuberculous Lobar Pneumonia

Positive history.

Chills, rapid rise of temperature and pulse.

Appears early, painful, persistent.

Blood streaked to pure blood, later becoming muco-purulent.

Similar in type, but is in the upper chest.

Suppressed, bronchial in type.

Longer, no crisis, fatal in high per cent of cases.

Absent.

Leucocytes normal or decreased with low per cent of polymorphonuclears.

May be unilateral or bilateral; involves portion of lobe, several lobes or an entire lung, but involvement always includes an upper lobe.

Marked pallor, cyanosis.

Prognosis. The prognosis is practically always hopeless, death ensuing in a few days time in acute cases, or a few months in the subacute and chronic cases.

Treatment. Treatment includes the usual hygienic measures of rest, fresh air, diet, stimulants and sedatives as used in other forms of tuberculosis.

Pneumothorax, when possible, offers some hope. If the patient is not too toxic and the other lung is in condition to justify collapsing the involved lung, the disease may be checked before reaching a fatal termination.

In considering the collapse several factors must be taken into account—(1) the toxicity which is very apt to be increased by the added absorption from the collapsed lung; (2) the danger of an acute miliary tuberculosis resulting from a spread from the involved lung; (3) the danger of shock in a patient already acutely ill. In view of the almost certain fatality in this condition, radical measures are justifiable; but, even so, every precaution possible should be taken. The collapse should be induced very gradually, giving small amounts of air at frequent intervals, using a careful local anesthetic as a prevention of pleural shock, and most of all, gaining the confidence of the patient before the pneumothorax is attempted and thus eliminating the nervous element.

We want to report six cases of acute tuberculous pneumonia, four of which were treated with pneumothorax with recovery; two cases terminating fatally, one treated with pneumothorax and one without pneumothorax.

Case I. A negro girl, aged sixteen, referred by Dr. W. K. Reed, March 1, 1921. Patient complained of cough, rather profuse expectoration, maximum daily temperature 104-105, respiration 40, pulse 100-110.

Past History. Patient had been fairly well until two weeks ago when she contracted a severe cold beginning with a chill, sudden rise of temperature to 102 degrees, soon going to 104 degrees; she complained of cough, expectoration, pain in the left chest, which continued to grow more and more severe. On physical examination, signs of consolidation in the left upper lobe were made out, and a diagnosis of pneumonia was made;

but, because of the location of the consolidation, Dr. Reed had the sputum examined for tubercle bacilli and found it four plus. When first seen by us, two weeks after the onset, we found a girl of sixteen, well developed and nourished, acutely cyanotic and dyspneic, respiration labored, frequent cough and profuse expectoration, tenacious and greenish-yellow sputum, temperature 104.2 degrees, pulse 135, respiration 36, blood pressure 102/74, weight 135, which was eight pounds less than her weight a month ago.

Physical Examination. Pupils and reflexes normal; throat negative; heart, abdomen and extremities negative. Chest—left side moving only slightly with respiration. Right lung—negative except for slight dullness from the apex to second rib and fourth vertebral spine. No rales or abnormal breath sounds. Left lung—moderate dullness from the apex to the sixth rib and eighth vertebral spine with very marked dullness from the third to the fifth rib in the mid-axilla. Increased whisper and tactile fremitus with marked bronchial breathing throughout the dull area, egophony in the fifth space in left axilla. Sputum showed tubercle bacilli. Blood, leucocytes 14,200, with only 64 per cent polymorphonuclears. (X-ray—right lung field showed a slight peribronchial thickening in the first and second spaces. Left lung—dense shadow almost as dense as the heart shadow from the second to the seventh rib with a cavity in the third space). Artificial pneumothorax was started March 2. Temperature rapidly subsided, dropping from 105 degrees to 101 degrees as daily maximum. Symptoms gradually disappeared until at the end of three weeks temperature was rarely going above 99. Lung was kept collapsed for a year and a half and then gradually allowed to expand. Our examination on April 6, 1923, showed temperature 98.8 degrees, pulse 82, weight 135, left lung completely expanded, breath sounds good, no rales, amphoric breathing in second space right.

On December 8, 1921, the patient was sent to the hospital with an acute attack of appendicitis. Because of her previous pulmonary condition it was thought best to treat the case by the Oschner method rather than to

operate. The patient made a good recovery with no evidence of any flare-up of her chest condition.

Case II. A woman of thirty, married, white, referred by Dr. Alexander Josewich of Minneapolis. She had been under our care for a year and a half with a moderately advanced pulmonary tuberculosis and had not made much progress. Six months ago she developed an intestinal tuberculosis and low grade peritonitis, most marked in the left lower quadrant, possibly originating from an infected tube. She had been on the Alpine lamp treatment for the past three months and the intestinal symptoms had greatly improved. On the 18th of September, 1922, she was sent to the hospital with a diagnosis of la grippe, temperature 101.2 degrees, pulse 85, respiration 18. She had an increase in her cough and expectoration with a yellowish purulent sputum which was negative for tubercle bacilli on two examinations. By the 21st of September her temperature had reached 104 degrees; she was pale and cyanotic, with an anxious, distressed expression, violent cough with only occasional sputum, yellow and tenacious. Left lung showed dullness beginning at the second rib blending into the heart dullness; posteriorly there was marked dullness from the fifth vertebral spine to the seventh vertebral spine and less to the base, many scattering medium coarse and fine rales coming after cough in showers, especially marked at scapular angle; breath sounds were bronchial in type and weak and distant over the upper lobe. Blood pressure 130-90. Heart negative. Abdomen, slight tenderness but no rigidity over left lower quadrant. Specimen of sputum at this time showed two plus tubercle bacilli. Diagnosis of caseous pneumonia of the left upper lobe was made and pneumothorax of the left lung was started September 21. Patient made rapid improvement, temperature dropping to normal, cough and expectoration decreasing. X-ray—in the left lung field showed a dense shadow from the third rib shading off to the base. November 4, chest condition was quiescent. Heliotherapy, on account of the intestinal involvement, was continued and at present the patient has been temperature free,

and other symptoms except a slight morning cough have subsided.

Case III. Miss M. G., aged 21, American, student, born in Kentucky, admitted to the hospital February 13, 1924. She had had blood poisoning in one leg following a snake bite at the age of ten and was in bed for a year. She had influenza in 1918, but was only in bed two or three days. In July, 1923, on taking an insurance examination, it was discovered that she had a very rapid pulse, but no cause was found. She seemed perfectly well otherwise. August, 1923, she contracted a cold with a severe cough which continued for two months. She felt fairly well and continued her usual activities, playing tennis and dancing, though she was extremely tired by night. From October, 1923, to January, 1924, she seemed as well as usual and began to increase her exercise. About the middle of January she began running fever and her cough reappeared the first part of February. She developed severe pain in the left lower chest and was seen on February 10, 1924. She was apparently having an attack of influenza, temperature 104 degrees, chills, general malaise, cough, expectoration and a tenacious yellow sputum.

Physical examination on February 21 showed a well developed but poorly nourished girl of 21, slightly pale and flushed. Temperature 104.2 degrees, pulse 120, respiration 28. Heart, abdomen and extremities negative. Right lung—slight dullness, harsh breathing and a few scattering rales from apex to root posteriorly and above the clavicle anteriorly. Left lung—hyperresonance in upper half with moderate dullness from the fourth rib and the sixth vertebral spine to base. Suppressed vesicular breath sounds over the same area and distant bronchial breathing from the mid-axilla in the eighth interspace, with definite amphora in the sixth interspace. Also many medium coarse moist rales extending from the third rib to the base. Sputum was loaded with tubercle bacilli. X-ray of chest showed slight shadow extending from the root into the first and second spaces of the right lung and a less marked process in the sixth space. The left lung was negative above the hilus with a dense shadow from the fourth rib to the base

nearly equal in density to the heart shadow, with an area in the fifth interspace about one and a half by two centimeters showing beginning cavitation. A similar area nearer to the periphery also showed beginning excavation.

Diagnosis of tuberculous lobar pneumonia was made and pneumothorax was started. There was a slight reaction after the first injection of air; since then the patient has improved rapidly, her temperature dropping within a week to 100 degrees, since then coming on down to normal. Fluoroscopic examination of the chest March 6, 1924, showed the left lung completely collapsed to the fourth rib and about half collapsed to the base. A definite cavity can be made out in the fifth space.

Case IV. G. McV., negro boy, age 19, student, born in Colorado, seen in consultation with Dr. W. K. Reed, June 8, 1924.

Patient complained of distended abdomen, fever, loss of weight and strength.

Family History. Father died of lues at 30. Mother has chronic cholecystitis. Two brothers living and well. One sister has tuberculosis.

Past History. Two years ago he had an attack similar to the present one but not so severe, followed by pleurisy of left side.

Present Illness. Three weeks ago he noticed his abdomen rapidly enlarging. Consulted a doctor, who prescribed salines. The swelling rapidly subsided. One week ago the enlargement recurred, and has steadily increased. No cough or pain. He rapidly became emaciated.

Examination showed colored boy of 19, markedly emaciated. Abdomen distended. Few atypical rales in left lung above the root, with distant breathing throughout lower half of lung.

Abdominal tap gave one and a half quarts clear, greenish fluid. Diagnosis of tuberculous peritonitis was made and one thousand cubic centimeters of air injected interperitoneally. Two days later another tap of 1,000 cubic centimeters of fluid was made and 500 cubic centimeters of air injected. The patient entered the hospital June 12. Pupils and reflexes normal. Mouth and throat negative. Right lung—only slight increase in

root dullness. Heart displaced to right, with border two inches to right of midsternum, left border at left sternal margin. Left lung—"woody" dullness clavicle to sixth rib and fourth to eighth vertebral spine. Breath sounds in anterior axillary space distant. Posteriorly, breath sounds bronchial in type and many subcrepitant rales on inspiration, especially in fifth and sixth spaces. Abdomen distended, with dullness in both flanks. June 20 thoracentesis attempted, believing the pleura to contain fluid. This was unsuccessful, the needle penetrating tough fibrous tissue with aspiration of small amount of bloody material, which showed many tubercle bacilli on examination. Temperature 99 degrees in the morning to 104 degrees in the afternoon. Left pneumothorax was done, with gradual partial collapse of lung and improvement in symptoms. The abdomen was tapped and pneumoperitoneum continued.

Blood: Red blood count 3,500,000; white blood count 13,000; 64 per cent polymorphonuclears. Urine negative. No sputum at any time. Ascitic fluid 1.046 specific gravity, 760 cells, mostly lymphocytes. Guinea pig injected with abdominal fluid died of tuberculosis at seven weeks. Blood and spinal Wassermann negative.

Pneumoperitoneum and pneumothorax continued for about two months. Patient has made a gradual recovery, and at present is working two to three hours waiting table at the County Hospital. He has gained twenty-three pounds and is temperature free.

Case V. An American coal miner, aged 22, coming here from West Virginia on account of pulmonary tuberculosis, entered the hospital November 16, 1920. Examination showed him to have far advanced pulmonary tuberculosis. Heart and abdomen negative. Patient was cyanotic and dyspneic. Right lung—moderate dullness apex to third rib and seventh vertebral spine, bronchial breathing throughout this area with many bubbling and crackling rales. Left lung—only slight breath and percussion changes in the upper half with moderate number of medium coarse rales in the same area. He had been having frequent hemorrhages. On November 18, following another hemorrhage, temperature rose to 102.8 degrees, pulse to 140. Pneu-

mothorax of the right lung was attempted, followed by a marked reaction, temperature reaching 105 degrees, and pulse 160. Definite signs of consolidation in the right upper and lower lobe led us to a diagnosis of tuberculous pneumonia, and in view of this fact, in spite of the severe reaction, pneumothorax was continued, giving daily injections of 150 to 200 cubic centimeters. Reactions became less and less marked, temperature and pulse gradually dropped, and the hemorrhages were controlled. However, the patient continued very cyanotic and dyspneic. Examination on December 10 showed the right lung about two-thirds collapsed and only very few scattering rales could be heard near the apex of the left lung, but dyspnea and orthopnea became so marked that the pneumothorax was discontinued on December 15. The patient gradually went from bad to worse, continuing very dyspneic all the while. He had hemoptysis at frequent intervals but was in such bad condition that pneumothorax did not seem again justifiable. June 29, 1921, he died of general miliary tuberculosis.

Case VI. Negro girl of 19, born in Colorado, referred to us by Dr. Queal, March 7, 1922, as an advanced case of pulmonary tuberculosis. She had a temperature of 104 degrees, pulse 140, respiration 30-36. Left lung showed a consolidation from the second

to eighth rib, marked bronchial breathing, many fine to medium coarse rales in the same area. Right lung showed only slight dullness apex to the fourth rib and seventh vertebral spine. No rales could be heard. Collapse of the left lung was considered, but an x-ray showed an extensive involvement of the right lung as well as the left. Diagnosis of pulmonary tuberculosis far advanced, with tuberculous lobar pneumonia of the left upper lobe and upper half of the lower lobe was made. The patient was put on the usual hygienic treatment and gradually made some improvement for a month or more when she began to fail, have frequent hemorrhages, and died February 23, 1923, with a generalized tuberculosis.

Conclusions

1. Pneumothorax offers some hope in cases of tuberculous pneumonia.
2. Fatality in tuberculous pneumonia, even with pneumothorax, is high.
3. Pneumothorax should be given as early in the course of the pneumonia as possible.
4. As tuberculous pneumonia is very apt to follow hemoptysis, suitable cases should be given pneumothorax following hemorrhage before pneumonia has developed.
5. Tuberculous pneumonia is most often secondary to an active pulmonary tuberculosis but may be secondary to an active lesion outside the thorax.

MODERN TREND IN INFANT FEEDING*

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Breast milk is still the ideal infant food. Where one breast fed infant dies, four to six die when fed on artificial food. Cow's milk is the best substitute for maternal feeding. Seventy-five percent of the babies can be fed on ordinary cow's milk dilutions, 25 percent will need other food and care.

Cow's milk contains three times as much protein and salts as does breast milk. The Ca and Mg make cow's milk difficult for the infant to digest. These bases can be neutralized by adding acid—lactic or hydrochloric can be used for this purpose. The

buffer value of cow's milk is much greater than that of breast milk. It can be overcome by allowing the milk to sour or by adding 1½ drams of lactic acid to one quart of milk. The acid should be added slowly.

The daily protein requirement of an infant is met by giving 1½ ounces of cow's milk for each pound of body weight. Poorly nourished infants require more than this amount, and it is well in such cases to add cow's milk to the breast feedings, if the child is breast fed, or add casein to the cow's milk, if artificially fed.

Proteins are made up of many amino acids and some proteins are said to be incomplete,

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because they will not sustain life. Such incomplete proteins are gelatin and those found in vegetables. Milk and meat are complete proteins.

Proteins and amino acids contain practically 16 per cent of nitrogen, so protein is commonly determined quantitatively by first determining the nitrogen and multiplying this by $6\frac{1}{4}$. Nitrogen equilibrium is the exact balance between nitrogen intake and nitrogen excretion. The adult needs only the "repair quota", but the child needs also the "growth quota". The protein of cow's milk is lower in some of the essential amino acids than is breast milk, so more cow's milk is needed to sustain life.

If sufficient fat and carbohydrate are ingested, the only protein waste will be that due to "wear and tear" of the tissues. Protein can usually be easily digested. The fat in the diet does not need to be in excess of that in breast milk. It can be partly replaced by cod liver oil which contains many times as much fat soluble vitamin as does fat.

Sugar should be used liberally, as it protects protein, replaces fat, and furnishes heat and energy at the least cost to the human economy. One ounce of sugar can be added to the diet at one month and two ounces at four or five months. Lactose is most apt to cause diarrhea. Saccharose (cane sugar) is as good for babies as lactose and is cheaper. Dextrine is not easily fermented. It is slowly digested and not likely to cause diarrhea. Glucose and maltose ferment easily but are quickly absorbed. Corn syrup is made up of dextrine 55 per cent, maltose 30 per cent and glucose 15 per cent. Large amounts of corn syrup may be given without producing diarrhea.

Starch does not ferment readily and seems to have a favorable effect on nutrition. Some poorly nourished children will begin to gain as soon as starch is added to the diet. The reason for this is not known.

Mineral salts are essential for life and growth, and they are present in sufficient amounts in both human and cow's milk until the age of 5 or 6 months, when iron should be added. This can be given in the form of green vegetables and meat. Water is essen-

tial; the daily quantity required is from $1\frac{1}{2}$ to $2\frac{1}{2}$ ounces per pound of body weight.

For a normal infant to grow the following conditions must be fulfilled:

1. The food must be sufficient to cover the caloric needs.
2. It must supply sufficient protein, carbohydrate, mineral salts, water and vitamins.
3. It must be capable of digestion.
4. It must be free from harmful bacterial contamination.

The caloric requirements during the first year are as follows:

	Calories, per kilo of body wt. (45 cal. per pound)
Basal resting metabolism.....	60
Allowance for activity.....	20
Allowance for growth.....	15
Allowance for unutilized food.....	5
	<hr/> 100

A poorly nourished infant requires more food than a healthy one; it may be as much as 200 calories daily.

We will usually feed whole cow's milk diluted. In calculating our formula we will begin by taking $1\frac{1}{2}$ ounces of milk for each pound of body weight, that is for a baby of 10 pounds we would use 15 ounces of milk. A 10 pound baby is 2 months old and needs 5 feedings daily of 5 ounces each. This makes 25 ounces and as there was only 15 ounces of milk we will add 10 ounces of water or thin gruel. This only makes 300 calories ($15 \times 20 = 300$) and a baby of 10 pounds weight needs 450 calories daily. So we add $1\frac{1}{4}$ ounces of sugar (sugar=120 cal. per oz.). That is all there is to feeding a healthy baby. Another example: a baby of 10 months needs 5 feedings of 7 ounces=35 ounces cow's milk—no diluent; 35 ounces of milk equals 700 cal. A 10 months old baby weighs $19\frac{1}{4}$ pounds and needs 866 cal., so we add an ounce of sugar (120 cal.) and cereals and vegetable puree to the diet to make up the required caloric value.

Sick and poorly nourished infants usually require as much or more food than a normal infant of the same age, so we need to get this amount of food into them. It may be necessary to concentrate the food by adding casein and sugar to lactic acid milk.

A REVIEW OF CARCINOMA OF THE STOMACH

Report of Two Cases

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Carcinoma of the stomach is a very important matter to physicians because of its frequency, difficulty of sufficiently early diagnosis, increasing incidence, and serious nature. Uniformly hopeless except in its early stages, insidious in its onset, often occurring without any premonitory symptoms, it challenges surgeons and internists alike to check its ravages.

Of the etiology we know very little. It is more common in men than in women. Its incidence increases with age and the actual number of cases increases year by year. One cause of cancer of the stomach seems definite, that is peptic ulcer. A common finding at operation is an old indurated peptic ulcer on the stomach side of the pyloric vein with early or late carcinomatous infiltration just beyond its margin. At least one-half of all the cases of gastric carcinoma give a history suggesting ulcer, either shortly before the development of the cancer symptoms or years preceding.

This carcinomatous infiltration occurs in the usual ulcer locations, that is, most commonly on the lesser curvature, near the pylorus, less commonly on the posterior surface or in the pylorus itself, and occasionally on the greater curvature, or in the cardiac end of the stomach even near the opening of the esophagus.

Cancer spreads through the stomach by direct infiltration and extension, by way of the blood stream, and by the lymphatics. The direction of infiltrative growth in the stomach wall and usually in the submucous coats is almost entirely toward the cardia. Extension back over the pyloric ring to the duodenum is unusual, an important fact to be borne in mind when doing a resection. The general direction of spread by lymphatic transportation is along the lesser curvature, and the coronary group of glands is early affected. The glands along the greater curvature are attacked fairly early and the pyloric groups later. From thence other systems of glands are involved, as the coeliac,

those at the hilus of the liver, the superior mesenteric, the biliary, mesocolic, the lumbar, and the supraclavicular. The liver and spleen become the sites of metastatic growths originating in the stomach, and the cells are probably carried to them through the blood vessels.

Involvement of the stomach in a cancerous process by direct extension from other organs as the pancreas is mentioned at this time.

The symptoms of carcinoma of the stomach do not follow any regular sequence and no two cases cited are alike. Vomiting is a common symptom and appears both in the presence and in the absence of obstruction. It is due, aside from actual obstruction, to interference with normal peristalsis, and to gastric fermentation, and irritation. Blood is always present in the vomitus in greater or smaller amounts, and the presence of coffee ground vomitus is an important finding. Large hemorrhages are rare. Occult blood occurs in the stools. Anemia is usually a sign of a lesion at least moderately far advanced. A diagnosis of pernicious anemia is often made in the latent type of cases. Loss of weight begins early and is most pronounced in the obstructive cases with vomiting. Pain and tenderness in the epigastrium are often early and important.

The symptoms of greatest importance, because they are early, are perhaps less definite, and are elicited only on careful questioning. Disappearance of the periodicity of ulcer symptoms with discomfort all the time during the day, day in and day out, is very suggestive. Loss of appetite, distaste for meat, gas, pain and tenderness in the upper abdomen appearing out of a clear sky should lead us to make a complete and careful clinical and laboratory study.

The disease may be latent and produce ascites or easily demonstrable metastases before the real trouble is discovered; nodules in the liver or spleen or above the clavicle may be the first warning. Jaundice may

be the first thing noted in this group of cases.

The history of carcinoma is usually a relatively short one, while that of ulcer is a matter of years except in the cases of carcinoma engrafted on ulcer.

The complications of gastric cancer are obstruction and perforation. Obstruction is due to the growth of the neoplasm into the lumen of the viscus usually at the pylorus, and to the interference with peristalsis by infiltration of the stomach wall. This leads to gastric stasis with a residue of food from meals hours before in the stomach. The food decomposes and acids of fermentation and gases form and contribute to the disability of the motor power of the stomach. Vomiting follows and accelerates the loss of weight and causes dehydration of the patient, and thus increases the surgical risk. Perforation may be acute, and death ensue from peritonitis; or the condition may be chronic and lead to abscesses and fistulae.

The diagnosis of early carcinoma of the stomach, and to be of value the diagnosis must be early, is of great difficulty in most cases. A large number of the cases come in with advanced and hopeless involvement and claim that they have had no symptoms until a few days or weeks before examination. Often these symptoms are those of perforation or obstruction.

A complete x-ray, clinical and laboratory study should be urged in every case of fifty or more years who complains of persistent stomach symptoms appearing out of clear sky without previous complaint or in peptic ulcer cases in whom the symptoms have become more constant or suddenly progressively more severe. Diagnosis by open incision should be resorted to whenever other means fail and we should not hesitate to advise exploration.

X-ray studies are most helpful. An easily demonstrable filling defect is usually a fairly late sign but is often present in the operable case. Delayed emptying time with a residue after 6, 24, or 48 hours is important and demands exploration. The gastric analysis after the Ewald breakfast or the fractional analysis after a barley water test meal are valuable. The absence of free hy-

drochloric acid, while found in other conditions as the anemias is of assistance in making the diagnosis. Persistent occult blood in the stool should arouse suspicion of an intestinal malignancy, and has been the only positive sign in some cases. The presence of a hard, nodular mass is a late finding but one which does not surely mean inoperability. This mass may be at any point in the abdomen and its fixation is a grave sign. The repeated measurement of the hemoglobin is important.

The prognosis depends on several factors. Most important is the amount of stomach involved by the growth and the amount of involvement of neighboring organs. Limitation to the lower third of the stomach with a freely movable mass and no definite metastatic nodules should lead to a moderately hopeful preoperative prognosis. Many cases of carcinoma of the stomach are practically hopeless from the very start, due to inaccessible location of the growth, for example, near the cardiac opening. Generally speaking, carcinoma of the cardiac end, unless very early, is inoperable; and diagnosis in this area is unfortunately usually late. The prognosis following resection is materially better, all other factors being equal, where the free hydrochloric acid is absent than in those where it is present or increased. The general condition of the patient, the cardio-renal complications, and the age must influence prognosis.

The treatment of carcinoma is surgical and the success of the treatment depends on the early date of the attempt, the preoperative care, the adaptation of the operation to the resisting powers of the patient, the thoroughness of the removal, and the care and watchfulness during the period of recovery. Exploration is justifiable in all cases unless there are definite metastases or other fatal complications. The operation is resection and the best method taken by and large is the Polya or the Polya-Balfour. The difference between the two is that in the former a posterior end to side gastrojejunostomy is done, while in the latter an anterior often with entero-anastomosis is done. The resection should be extensive and the glands along the lesser and greater curvatures and behind the

pylorus should be removed as thoroughly as possible. It is unnecessary to remove more than a short piece of duodenum.

The preoperative preparation should be thorough and systematic. Diet suited to the individual should be given and his wishes attended to in this regard. Gastric lavage several times daily should be done in the obstructed case, especially if the stomach is large and flabby. One is surprised at the general improvement following the use of this measure. Following the operation there will be dehydration, consequently the patient must be filled with fluids using the subcutaneous, intravenous and rectal routes as indicated.

The after care in these cases is equally rigid. Fluids must be provided during the first two or three days by extraoral routes. Unnecessary pain and discomfort should be avoided. Gastric lavage should be carefully done, if persistent vomiting is encountered. After the patient leaves the hospital he should be followed diligently. Advice as to diet should be given. The bowels should be regularly evacuated to prevent dragging on the anastomosis with attending gastric distress.

Other operations are mentioned here. The Bilroth II, resection of the lower end of the stomach and pylorus with posterior gastro-enterostomy is valuable in early cases. Of the palliative measures, gastro-enterostomy is of great value in the obstructed cases and it may be followed by radical procedures when the patient has improved. Gastrostomy for feeding is indicated in lesions of the cardiac end with obstruction, a rare condition.

Case I. A farmer, aged 44, complained of gas on the stomach and heartburn beginning two or three hours after meals. This began three years before, and the first attack lasted one month. It was followed by a complete remission of one year. The second attack lasted one month and was identical with the first. He was given a Sippy diet and alkalis with relief. The third attack began four months before admission, and has been continuous and more severe than the others and has been unrelieved by the measures that were effective before. He had had no other illnesses of note. He had lost ten pounds in

weight during the last attack. Physical examination was negative except for enlarged infected tonsils and tenderness in the upper mid-epigastrium.

The hemoglobin was 78 per cent. The Ewald test gave 33 free hydrochloric acid, 62 total acid. The urine was negative. The x-ray examination of the stomach showed exaggerated peristalsis, and a 60 per cent six hour residue. A diagnosis of ulcer of the pylorus with stenosis was made and gastro-enterostomy advised. At operation the pylorus was found to be indurated, especially on the lower side, and was nodular. One nodule about the size of a bean was palpated on the greater curvature just proximal to the pyloric ring. There were no enlarged glands. A Bilroth II resection was done. On examining the specimen, the pylorus was found to be contracted to the size of a straw, apparently by the healing of an ulcer. The nodule mentioned was sub-mucous and was quite hard.

The patient made an uneventful recovery and is now, four months later, in excellent health.

The pathological report by Dr. Alter showed scirrhus carcinoma of the stomach.

Case II. A woman aged 54 complained of loss of weight, 30 pounds in the preceding three months, with pain in the left upper quadrant and vomiting for two weeks. Fourteen years before, following over-prolonged nursing of her last child, she suffered a great deal from pain in the epigastrium and vomiting. This continued for some months and she lost a great deal of weight and developed some type of psychosis. She recovered from all symptoms a short time after weaning her baby.

The loss of weight of which she complained on examination had been gradual for a year. Her upper abdominal pain was cramp-like, and when it became severe she vomited. No blood was noted in the vomited material or in the stools. There was no food or soda relief.

The patient was very much emaciated. Her skin was yellow and parchment-like in appearance. There was some resistance in the left upper quadrant and an indefinite, small, irregular mass was made out there.

Gastric analysis after a barley water test meal showed free hydrochloric acid 20, total acid 70.

X-ray examination showed rapid emptying of the stomach. A crater was seen on the lesser curvature, well toward the junction of the upper and middle thirds, and with elevated edges. A diagnosis of carcinoma was made. A Polya resection was done, removing all the lesser curvature and pylorus and a large amount of the greater curvature, leaving a small pouch for a stomach.

The specimen showed a deep ulcer, three centimeters in diameter with a smooth base. About this for an area ten by four centimeters was hard carcinomatous infiltration. Glands along the lesser curvature were involved.

The patient had a stormy convalescence, but gradually regained most of her weight and is now, six months later, in good health. A recurrence is expected.

CONTROL OF RICKETS

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For one to attempt, after the recent flood of literature on the subject, to add anything to the scientific knowledge of rickets, would be presumptuous to say the least. However, as the discussion waxeth warm the babies continue to develop rickets at about the usual rate and that even in the wonderful sunshine here in Colorado. For babies do have rickets in this climate and far more than is of any particular credit either to the state or the individuals who care for them. As to why they have rickets at all, one need only to refer to such an excellent article as the one by Hess in Abt's Pediatrics and to the various excellent articles appearing in our journals.

It is not the province of this article to go into the theories or the pathology of the disease, or nutritional state, or whatever it is, but rather to point out the more easily understood factors in its control. First, it has become apparent to all careful observers that only breast milk from a normal, healthy mother has dependable antirachitic value. Even this may fail, if the diet of the mother be deficient and the baby develop rickets, especially if hygienic conditions are bad. Cow's milk, either fresh, evaporated, condensed or dried, can not be depended upon to furnish an adequate amount of antirachitic substance, neither does the addition of vegetables and whole grain cereals make up the deficiency.

Another factor in the control of rickets is that of hygiene in which outdoor life, or more

specifically, exposure to the direct or diffused rays of the sun, plays the most important part. This is the reason, or at least one of them, for rickets being more prevalent in early spring, the end of the long indoor period. It seems to be definitely established that the ultraviolet rays of the sun make up the antirachitic factor; and it is well to remember that these rays are practically completely blocked by ordinary window glass.

Prevention is better than cure; yet we are still able to do much good after the disease has developed. Consequently the early diagnosis is of no little importance. Our textbooks are so full of the advanced signs of rickets that those not specially trained are apt to wait for such signs before making a diagnosis. We do not see much of the advanced conditions in Colorado, but the lesser degrees are certainly far more common than is usually believed. Head sweating and restlessness are often given as the earliest signs of rickets, but these are not the signs that the physician sees. The mother may tell him about them or she may not. What the physician will see in this baby is a baby often up to normal weight, but pale and with bluish areas under the eyes. The veins often show through the skin of the forehead. This picture is one of nutritional change, and if demonstrable rickets is not now present it soon will be. This type of baby is often seen in the first six months of life. It is now a well known fact that rickets is common at

this period as well as the later months. Examination of the chest will reveal the earliest bone changes most frequently to the casual observer. By placing the fingers on the chest parallel to the sternum and moving outward, the beading or enlargement of the costochondral junctions will be encountered. The costal margin often will be found flared outward, and if this be extensive enough a groove will be formed, the so-called Harrison's groove. The shape of the chest also may be further distorted. Bossing of the frontal bone, craniotabes and marked bowing of the tibia are later signs, and are not so frequently seen. Of course there are typical radiograph findings, but we do not make use of such in general practice for obvious reasons. The same is true of blood chemistry. Delayed dentition, delayed standing and walking may or may not mean anything so far as the diagnosis of rickets is concerned. The time of the year is important, for, as already stated, the disease comes on at the end of prolonged indoor life, that is late winter and early spring.

The control of rickets should be and is a relatively simple matter. The only excuse for this paper is the fact that we are constantly seeing babies who have been under the care of physicians, yes, even baby specialists, and have developed rickets. The hardest problem is to keep babies under supervision. It is a matter of common experience to see a baby doing well in every way brought in three months later with early rickets. It is up to each of us to urge every mother of a new baby to bring her baby in at stated intervals for examination and for consultation as to food and hygiene. The mother can not know just how her baby is getting along, and the physician will not unless he examines it. The mother who tries to raise her baby "by the book" is all too often in trouble. As physicians, then, we should be able to recognize early rickets. We should know and impress on every mother the value of sunlight and fresh air. We should not forget that no artificial food can be depended upon to have adequate antirachitic value and that the breast milk of many mothers is also deficient, for such is actually the case. Fortunately we have an excellent source of the anti-

rachitic factor in cod liver oil and this should be added to the food of all artificially fed infants from the first month on. It should also be given to all breast fed babies that are not perfectly normal in every way, especially if the mother be in any way in impaired health. It should be given in all cases of complementary feeding and should be continued after weaning and through the second year of life. It probably could be continued longer with very definite benefit. It may be given in five to ten drop doses three times a day in the first month of life and increased to a half teaspoonful at three months. One can confidently assure the mother that her baby will be a better baby with cod liver oil than it will without it, that it will develop better, it will have better teeth and teeth that will not decay so readily, it will have better resistance to respiratory and other infections and will not be so liable to develop hypertrophied tonsils and adenoids. In fact, the nutritional state of the baby will be kept at its best if cod liver oil is daily added to the diet. By cod liver oil we mean pure cod liver oil and not the various preparations that are offered in the market. These preparations may be perfectly good but the cost of the oil in some of them is thus raised to as high as eight or nine dollars per pint, whereas one can always get an excellent grade of oil for one dollar per pint. This means something to some families, usually the type where cod liver oil is most needed.

We have said nothing new in this little paper. It is the same thing that pediatricists of large experience have been saying over and over, but have not yet said it loud enough for the masses to hear. We have said it briefly, hoping thereby that some would read who otherwise would not, and having read take it to heart to the extent that the babies who happen to come under their care may have better health now and a larger promise for the future.

Just as the twentieth century opened, Alexander Dowie was "touching" people and producing wonderfully curative effects. . . .

Of course, if your ill was a chronic one you must expect to have to be "touched" a few times, but cure was only a question of a little patience and continued surrender of the precious metal. It was metalotherapy nearly always as well as the healing touch.—James J. Walsh, in "Cures."

TUBERCULOUS LARYNGITIS FROM THE STANDPOINT OF THE PHYSICIAN

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Introduction

One of the most widespread diseases is pulmonary tuberculosis, and in that its second most frequent complication is tuberculosis of the larynx, the physician is most vitally interested in that disease. He is interested in its diagnosis, because he has the first opportunity to see signs of its onset, and because its early detection often means the life or death of his patient; in its prognosis, because patient and relatives are entitled to know what influence such complication may have on the final outcome of the primary disease; and in its treatment, because by wise direction only may the patient hope to regain health. The scope of this paper is a consideration of those early signs coming in the field of the physician, the detection and interpretation of which are his responsibility; a consideration of what the advent of this complication means to the tuberculous patient and just what is to be done for those suffering with this disease.

Frequency

An idea of the frequency of laryngeal tuberculosis may be had by recalling the fact that one million persons are now afflicted with pulmonary tuberculosis among whom there are 100,000 deaths each year.

Brown¹ states that "laryngeal tuberculosis occurs in about 25 per cent or more of adults with pulmonary tuberculosis and that in the United States 100,000 people have the disease." Lockard² says that "one-third of all persons with recognizable lesions in the lungs have complicating lesions in the throat; that autopsies upon individuals dead of consumption prove that nearly 50 per cent have tuberculous lesions in the larynx." Bronfin³ and Markel³ say that it "is present in at least 63 per cent of the tuberculous." Another⁴ goes further by saying that "it is rare to find a patient with chronic pulmonary tuberculosis who does not have in the course of his disease, a laryngeal localization." A noted English laryngologist⁵ states that today in England and Wales

there are 106,990 persons suffering with this disease. If the prevalence in our country equals that of his, we have now in the United States over 300,000 such sufferers. There are no governmental statistics on this point, but 100,000 is most likely not an exaggeration. Not only is it common in advanced pulmonic disease, but also in the early incipient cases, though not so frequent. Of all the cases of incipient pulmonary tuberculosis, some 3 per cent to 5 per cent have also the laryngeal. In moderately advanced cases the percentage is 18 to 20, while in far advanced cases it is 30 to 35.

Seriousness

While this malady must still be considered a grave one, its prognosis is much more favorable than it was a decade or two ago. Only a few years ago an eminent laryngologist⁶ said, "The treatment of tuberculous laryngitis is directed primarily toward the focus in the lung * * *. The local treatment to the larynx is practically of no curative value, and only palliative measures have a place in the management of this disease." The writer well remembers how he was taught in medical school fifteen years ago that the discovery of laryngeal invasion in an elsewhere tuberculous individual meant a death certificate. Twenty years ago the tuberculous having this complication were refused entrance into Trudeau. More recently, "competent teachers of laryngology in one of our Eastern medical centers were of the opinion that nothing worth while could be done for it."⁷ But we have recently been making progress in methods of diagnosis and treatment. All are not so pessimistic. L. de Reynier⁸ "considered laryngeal tuberculosis exceedingly amenable to treatment." He said the disease, "except in young infants and cases complicated by syphilis, is relatively benign, since cure is not the exception but the rule."

Levy⁹ says: "The curability of laryngeal tuberculosis is no longer a moot question, al-

though the means by which the cure is accomplished is still a fruitful source of difference of opinion." He also demonstrated at a recent meeting of the Midwestern Section of the American Laryngological, Rhinological and Otological Society, a most beautiful series of healed larynges in persons at the time leading normal, useful lives and having excellent laryngeal function.

Similar examples may be seen among our own patients. In fact, recent literature is rich with abundant proof of the curability of this disease and, even in the early '90's, Keimer,¹⁰ though differing from most of his colleagues, recognized the disease as a curable one, and in 1894 wrote a paper entitled, "May We Still Speak of the Incurability of Laryngeal Tuberculosis?" So gratifying are the results of present day management of these cases, that as far as the laryngeal complication itself is concerned, the prognosis may be said to be quite good. "It is to be understood, however, that a healed larynx, like a healed lung, consists largely of scar tissue, is often deformed and distorted and may have diminished function, yet the patient lives and has a useful larynx."⁷ However, the writer believes that the above statements require certain explanation or they will be entirely misleading. Many writers, the author among the guilty, have failed to emphasize sufficiently the likelihood of death from the pulmonary disease within the decade following the most successful healing of the larynx. This is the undeniable fact, but is realized only when a careful follow up study is made of the cures. While the laryngeal lesion is certainly quite amenable to treatment, it should be pointed out first, that recurrence is possible; and, second, that death from the pulmonary disease is by far more frequent among those having had the laryngeal complication than in the uncomplicated pulmonic cases. Sir St. Clair Thomson has been the exceptional writer, and has emphasized the value of the "follow up" in a consideration of the prognosis. In a recent report he says: "Of the 2,541 patients with pulmonary tuberculosis who were discharged from the King Edward VII Sanatorium, Midhurst, between

1911 and 1921, the proportion of those alive between one and ten years later was, amongst those with a sound larynx, double that of those with tuberculous laryngitis. Of patients found to have tubercle in the larynx during these ten years, two out of every three were dead. Of those with a sound larynx, it is the reverse—two out of three were still alive. Of all the 477 cases of laryngeal tuberculosis which passed through my service at Midhurst between 1911 and 1921 no less than 70.5 per cent are now dead."⁵ I do not believe that his results are less favorable than others, but he calls attention to a phase of the prognosis which is usually omitted by writers on this subject. The importance of the prognosis to the physician is twofold: first he should realize that it is made better directly in proportion to the promptness with which he recognizes early suggestive symptoms; and second, at the onset of this complication he should advise the patient or his relatives, of the decrease in chances for permanent recovery from the pulmonary disease.

Detection

Two early symptoms of beginning invasion of the larynx are present in about 98 per cent of cases. Their discovery is always the lot of the physician rather than the laryngologist. In nearly every one of these, confirmatory intralaryngeal signs are demonstrable with the laryngeal mirror or laryngoscope. The first and most common of these symptoms is a husky voice. Persistence of this even for several days, in a suspiciously tuberculous person, is a signal to the physician, and calls for an inspection of the larynx without fail. Aphonia frequently follows, and may be of several weeks duration, or if the disease progresses, of indefinite duration. The second most common symptom is a sensation of laryngeal discomfort. It may be during swallowing, during inspiration or during talking, and is usually slight in degree and indefinite in nature. It too, however, makes an inspection imperative. The other 2 per cent of the cases have neither of these symptoms, that is have no symptom. This is readily accounted for when the anatomy of the larynx

is considered. The epiglottis, for example, may be attacked, cause no hoarseness at all, and no discomfort until the disease is considerably advanced. The same is true of an aryepiglottic fold, or in fact, to some extent, in any portion of the organ save the true cords themselves. It is this group that is discovered only at routine laryngoscopic examination required by many modern tuberculosis sanitaria or at periodic "health examinations". Because of it, every tuberculous individual should have the benefit of frequently repeated intralaryngeal examination to watch for spread into the larynx just as with the stethoscope he is watched for spread into other lung areas.

Treatment of the Disease¹¹

The history of the treatment of this disease is extremely interesting, because it reveals that a considerable number of our present day methods were used or at least mentioned, many, many years ago. As early as 1790, Savremone¹² published a paper on "Therapeutics of Tuberculosis of the Larynx," which is the first authentic one I have been able to find. Antedating this, however, by hundreds of years, were certain references to various phases of the disease, but very little was said concerning the treatment. Wright¹³ says that "in 1818 creosote was used in the form of a fumigation of tar, and this might be useful in laryngeal phthisis, but as a rule treatment was regarded as of no avail." Thus creosote seems to be the first drug used in this connection, so far as the records show. In 1821 F. Siemerling¹⁴ wrote a case report on the "Cure of a Case of Phthisis Laryngea, Through the Use of Herring's Milk," followed in 1824 by Plasse's¹⁵ article on "Observations of the Usefulness of Mercurial Inunctions in a Case of Laryngeal Phthisis with Suppuration of the Tongue," and again in 1826 by Fischer's¹⁶ article on the "Premature Expectations of the Therapeutic Value of Herring Milk in Laryngophthisis." These early writers, having no knowledge of the pathology or bacteriology of the tubercle, it is reasonable to assume that many of their supposed cases of tuberculosis were in reality lues or cancer. In 1859, Marotte¹⁷ des-

cribed the "Successful Use of an Ammoniacal Potion Containing Opium in Two Cases of Laryngeal Phthisis Accompanied by Symptoms of Suffocation and Asphyxia." The "natural cure" and "opium" here mentioned probably embodied the modern idea of the rest treatment, as it likely produced silence as well as relief of pain, and if so, is the first mention of it, to my knowledge, in the literature.

In recent years considerable has been said about a type of "submucous induration." Beck's⁶ textbook says: "There is one form of tuberculosis of the larynx that does not show very much on laryngeal examination, in which the pathologic process is a subepithelial infiltration and which is sometimes baffling in a differential diagnosis between lues and tuberculosis."

A similar observation as to pathology was evidently made years ago by Munch,¹⁸ and in 1867 formed the title of his paper, viz., "Chronic Swelling in the Submucous Tissue Which Reaches to the Cartilage Arytenoid: Appearance Similar to Pulmonary Tuberculosis: Recovery Through Cauterization." While this was not the galvano-cautery as used today, it must be admitted that the idea was largely the same. Thus one of our most valuable present methods of treatment was evidently first used about the time of the Civil War. Voltolini⁹ used galvanocautery, though with questionable success, that same year, and Grünwald⁹ later improved the technic. In 1877, nitrate of silver and creosote were advised for topical application. Although used sixty years previously, it is only since about this time that creosote has maintained popular prominence in the hands of many treating the disease. In 1879, Sakolowski¹⁹ published his article entitled "Climate in Treatment of Laryngeal Tuberculosis," and since about that decade climate has received much favorable consideration. In 1881 iodoform, in one form or another, was advocated and used rather extensively.

A great step forward was made in the year 1885 when Herman Krauze²⁰ advocated and proved the value of lactic acid. This was without doubt the greatest advance of

that period, and for years following many cures of ulcerative lesions were reported through its use. No drug was more universally employed and none gave better results. Until the present, many laryngologists use lactic acid and with much satisfaction. In 1887, Heryng²¹ demonstrated a case "healed by the use of curets and lactic acid," thus presenting a surgical procedure which was later rather widely used.

From 1887 to 1900 numerous papers appeared advocating the use of many different drugs and procedures, but none were of great importance. As illustrative of some of the more unusual of these, one might mention the paper of Campana's²² in 1893, entitled "Grave Case of Laryngophthisis Treated Successfully with Testicular Liquid."

In 1906 Semon²³ made the greatest advance of all by advocating the value of absolute silence. Rest, either complete or partial, seems to be combined with nearly every valuable method of treatment thus far advanced. Is it not possible then that rest is the more important therapeutic measure, credit for healing often being given to some drug or procedure which in reality is of limited or questionable value? Rest is certainly nature's own remedy. The writer, residing in this mountainous region, where the influx of tuberculous patients from other localities is continuous, is struck with the number coming because of aphonia. The involvement is so slight that often no lesion can be demonstrated clinically or even at postmortem, and yet nature sounds her early warning by making it unpleasant for the larynx to function and cures by the rest thus obtained. There can, in fact, be no doubt that a large majority of spontaneous cures of laryngeal and pulmonary tuberculosis are surely largely the result of rest. Later, nature becomes more insistent to the unheeding, and makes it physically impossible for the larynx or body to function, and then sometimes cures by enforced rest. These facts, then, are evidence that rest plays a most prominent role in the cure of this disease.

The modern, successful treatment of

laryngeal tuberculosis, it seems to the writer, could be summarized as follows:

It is based upon four fundamentals. The first is that the resistance of the larynx is usually directly proportionate to the constitutional resistance, regardless of the fact that some cases heal while the pulmonic disease progresses. This then presupposes management of the lung and constitutional condition by a competent physician, requiring the most cooperative efforts of internist and laryngologist.

The second is the principle of rest. This must be as nearly complete and as continuous as possible. It means absolutely no talking, and no whispering for months. It means minimal use of the larynx, in coughing, and for the transmission of sputum and of air. Hence with "complete silence", must go bed rest, for that means fewer respirations, and minimizes cough and sputum.

The third is galvanocautery. This often entirely eradicates the whole of an infected area and quickly replaces diseased tissue with scar tissue. To a thermolysis of the diseased tissue is added a stimulation of the contiguous normal tissue, making it more resistant.

The fourth is adjunctive treatment. It includes chemical cautery, heliotherapy, lamp therapy, curettage, amputation, (of epiglottis), psychotherapy and the topical application and instillation of certain preparations. This last procedure is very important, and while some may consider the application of drugs valuable only as the "toilet of the larynx", I am quite convinced they do much more than cleansing, which in itself is of considerable value. Antiseptic oils, even if not curative, certainly lessen the danger of infection by protective coating of the mucosa. Since they are lubricants, they lessen the time of exposure to sputum. Their germicidal value means something, and their analgesic action lessens the cough and produces comfort. To advise a patient to take complete silence and rest for a year gets no results. He must have more—every aid possible. That recovery may be hastened by the frequent instillation of certain drugs, there is no doubt. A most recent addition

to the list and the best one of all, is chaulmoogra oil. I am firmly convinced that this drug properly and timely instilled is a most valuable remedy in a large class of cases. In fact, we have reported many perfect cures from its use. One man, who later died from pulmonary hemorrhage, in advanced tuberculosis and who refused galvanocautery, made marked laryngeal improvement when treated with chaulmoogra oil even after his larynx failed to improve with almost all other methods of treatment. He refused rest, both laryngeal and general, and his death was not unexpected. However, during the last months of his life, with the pulmonic disease rapidly progressing, the advanced tuberculous laryngeal invasion was checked and the condition greatly improved under the chaulmoogra oil treatment.

Conclusions

1. In order to reduce mortality, physicians should watch for the two early symptoms of this disease. They alone have an opportunity to find them.

2. A patient may be safely advised that as his lungs improve, his larynx will improve, but the converse is not true. However, many cases show no tendency to pulmonary healing until after laryngeal activity has subsided.

3. While the prognosis of tuberculous laryngitis is good so far as the larynx itself is concerned, a person so afflicted is much more likely to die of pulmonary tuberculosis or some other of its complications, than if he had not developed the laryngeal complication, and the patient, or his relatives, should be so advised.

4. Although the battle against pulmonary tuberculosis is long and expensive, it will be found to be much more so in those having the laryngeal complication.

5. Since silence is almost impossible at home, sanitarium treatment becomes indispensable. The patient blessed with cheerful disposition, so that he can willingly give up voice and home, during his period of treatment does noticeably better than other patients.

6. Whispering is pernicious. While it is far better than talking, it seems to invite

the latter and whispering patients improve less rapidly than silent ones.

7. Tuberculosis of the larynx should not be regarded as a local disease, but as a local manifestation of a constitutional disease. It is always a coexisting complication; therefore the treatment of such a larynx by the laryngologist without simultaneous treatment of the pulmonary disease by the physician is contraindicated.

8. Finally, it may be said that a tuberculous person with laryngeal complication today has better chances for recovery, and by far better chances for healing of his larynx than did a similar patient a decade or two ago.²⁴

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ACUTE ABDOMINAL EMERGENCIES

Importance of Their Speedy Diagnosis

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So much has been said in the literature and medical circles generally about the acute abdomen, acute abdominal emergencies, lesions of the upper right quadrant, lesions of the right side of the abdomen, etc., that it might seem that these subjects had long since been worn threadbare. But since, in their various phases, they contemplate a discussion of appendicitis, cholecystitis, cholelithiasis, renal calculi, pancreatitis, peptic ulcer, acute intestinal obstruction, intra-abdominal perforation, ruptured ectopic pregnancy, ovarian cyst with twisted pedicle, all conditions over which we puzzle in a differential diagnostic way every day of our professional lives, they must always retain a lively interest for us.

Not long since we had the privilege in this society of listening to a masterly and exhaustive address on "Lesions of the Right Side of the Abdomen", in which, the speaker, an internist, dealt with the chronic conditions chiefly and emphasized the need of more careful, painstaking study, more accurate diagnosis and the value of non-surgical treatment, a mistaken diagnosis, he emphasized, to which a surgical operation is super-added, being a sad commentary on medical and surgical practice.

The intent of this paper is to direct your attention to the more common acute catastrophes happening within the abdomen, real emergencies, requiring accurate but very speedy diagnosis, and very prompt surgical treatment.

Time-consuming laboratory tests, consultations, and x-ray examinations, so valuable in the diagnosis of the chronic ailments of the right side of the abdomen, the waiting for the development of classical symptoms, will often mean the death of the patient and most certainly the development of local or general peritonitis.

The greatest toll in lives is still being exacted in these surgical conditions of the abdomen as the result of delay in diagnosis and consequent delay in operation. The

shortness of the period between onset and operation is the greatest factor in saving life.

Delay in diagnosis is due to one of two causes. Either the patient does not realize that the condition is, or may become, rapidly serious, and he hesitates to call in medical advice; or the medical adviser, when called, considers the symptoms atypical, waits for developments, gives morphine to relieve the pain, hopes that in the morning the patient will be better, then calls additional and time-consuming consultants, makes more laboratory tests, etc. Over the first cause, we as a profession have no control, except in the education of the public in the dangers of delay and the benefits of an early operation. Of the second, a fuller realization on the part of the profession that any severe abdominal pain occurring in a patient previously fairly well, and lasting as long as six hours, demands that no stone should be left unturned to make a speedy diagnosis, that typical textbook pictures are rare, and that confusing symptoms are very common.

One fundamental, guiding principle, if followed in cases where a definite preoperative diagnosis is impossible, will save us many lives, and that is—that it is better to open the abdomen, explore and find the definite pathology at operation, than to wait for an assured preoperative diagnosis plus a hopeless condition and a general peritonitis. It is the peritonitis that kills the patient, no matter what the origin of the acute abdominal condition may be, and the prime object must be to prevent the peritonitis. The diagnosis is always obscured by the peritonitis; and if the diagnosis is hard before its development, it will be practically impossible afterwards.

It is possible, however, in the great majority of cases, to make both an accurate and a speedy diagnosis; and this is the ideal toward which to strive. The old ideas that still linger in the minds of some medical

men, that there is too much haste in operating, must change. A few doctors yet believe in waiting for localization, more definite typical symptoms, some favor and still try Oschner's treatment in acute appendicitis, some give cathartics, enemas, morphia, etc., in the prediagnostic stage. We also are still hearing patients say that they would rather die without operation than have a good chance of getting well with an operation. So that public opinion still needs education on these subjects, and this education can only come from the general practitioners.

Thousands of people die every year in the United States from intestinal obstruction following a strangulated hernia. A strangulated hernia is obviously the easiest of all the acute abdominal emergencies to recognize. Why the great mortality? Taxis, fomentations, hot and cold applications, waiting to see if the strangulation will not reduce itself, is the answer, when in truth nothing is so safe as operative treatment applied early.

In arriving at an accurate diagnosis, a careful past history will many times give us a clue as to the present trouble. Deaver has called our attention to the fact that the acute abdominal emergency is seldom the result of "virgin pathology", but is the sudden outcome of some pre-existing, old, chronic, pathological process, as, for example, the strangulation of an old inguinal or femoral hernia, the perforation of a gall bladder filled with stones, a ruptured appendix from recurrent appendicitis, twisting of the pedicle of an ovarian cyst, or pedunculated fibroid, the rupture of a tubal pregnancy, etc.; so that in making a diagnosis, the past history is of extreme importance and should be carefully inquired into.

The physical examination, particularly the abdominal examination, can not be too carefully carried out or its importance over-emphasized. While it is true that the clinical laboratory and the x-ray examinations may not be quite as valuable as aids in diagnosis in these as in chronic conditions, they are compensated for by many physical signs and tests that give much valuable aid.

Murphy's fist percussion in hydro-nephrosis, and over-distension of the gall bladder or urinary bladder should not be neglected. The obturator test; the psoas extension test; phrenic shoulder pain; Rhovsing's sign; Owen's sign; tests for pain of thoracic or abdominal origin; Moynihan's signs; the significance of abdominal rigidity or distension; visible peristalsis; shifting dullness; all these in certain difficult cases give extremely valuable aid, and should always be carried in mind and used as the occasion demands.

Perhaps the most mystifying, most confusing in its manifold symptomatology and complicating pathology of all the acute abdominal conditions is acute appendicitis, and yet, when typical, it is the easiest to diagnose. First, the sudden onset of pain, usually epigastric at first and second, soon localizing over the appendix with tenderness, third, nausea or vomiting, fourth, fever and fifth, leucocytosis. These can seldom if ever be mistaken, but, alas, how muddled this classical picture can become.

Its frequency must also be borne in mind, the fact that, of all the others combined, appendicitis is the most common, more than 50 per cent of all abdominal emergencies admitted to the hospitals for operation being appendicitis. It is so common that, in confusing cases, it is safer to make it the first guess always.

In attempting to differentiate acute appendicitis, practically the whole list of the acute abdominal and several intra-thoracic diseases might be brought up for consideration, as in much of their symptomatology they may all at times simulate appendicitis.

I have found that the most helpful plan in arriving at a preoperative diagnosis and in untangling many of the confusing symptoms of acute appendicitis is to remember two essential conditions: first, the possible anatomical location of the appendix with relation to symptoms; second, the pathological conditions that may exist in the appendix at the time of the examination and thus correlate findings and symptoms according to location and pathology.

Is the process a simple catarrhal inflam-

mation of the mucous coat or has it involved the entire walls of the appendix? Is the lymphoid engorgement and pressure giving relief of pain, the "treacherous calm" of appendicitis? Is the peritoneum involved? Is there already gangrene? Is the lumen obstructed by concretions, kinks, strictures and adhesions? Are protective adhesions forming? And finally, has perforation occurred and are we getting a spreading peritonitis?

So definite are the recognized symptoms in these various pathological conditions, that at times they can be differentiated and have been variously designated as appendiceal colic, acute catarrhal appendicitis, acute obstructive appendicitis, acute perforative appendicitis, etc., and insofar as this classification and differentiation can emphasize greater urgency with symptoms of obstruction and greater danger with symptoms of gangrene and perforation, it serves a useful purpose.

As to the anatomical location, we naturally think of the appendix as being in its normal position in the right iliac fossa, at McBurney's point, which may be, in certain cases, a long way from its actual position and when inflamed, its symptoms will also be far removed from the right lower quadrant and McBurney's point.

These troublesome positions that the appendix may occupy are first, at the brim of the pelvis in apposition with and involving any of the pelvic organs, second, retrocecal and involving the kidney, kidney pelvis or ureter along any part of its course, third, in an anterior ascending position, involving the small intestines high up, liver, gall bladder, and gall ducts, fourth, occasionally stretching entirely across the abdomen to the left side, causing acute symptoms referable to the left lower quadrant. In a case recently operated for Dr. White of Longmont, the appendix was found in the left lower quadrant firmly attached, acting as a constricting band and completely obstructing the intestines at this point.

Our lack of realization for the moment of the great diversity in symptomatology that may result from these varying positions and relations of the appendix to the adjacent

organs, and also our failure not to bear in mind at the time of the examination the possible pathological process existing in the appendix, may account for some of our so-called mistakes in preoperative diagnosis.

I shall not occupy time with a discussion of the symptoms that are produced by an inflamed appendix attached to the urinary bladder, ureter, or kidney pelvis, to the gall bladder, and gall ducts, to the uterus, tubes or broad ligaments in the female, even though it might be interesting to do so, but I am fully convinced that this often occurs and may blur our appendicitis picture so badly as to be extremely confusing, so that I would like to urge constant alertness in the early recognition of these complicating conditions.

In our physical examination the chest must also not be forgotten, as pneumonia, influenza and diaphragmatic pleurisy have sometimes been misdiagnosed appendicitis. In fact, there are few large hospitals in which patients with pneumonia have not been operated on under the mistaken diagnosis of appendicitis. As an example of how frequently this error is being made, it is quoted in the very last issue of the A. M. A. Journal, volume 84, number 26, that out of one hundred forty-five cases of lobar pneumonia admitted to the Boston City Hospital, twenty-five of these came with a diagnosis of acute appendicitis. To avoid making this mistake the safe thing to do is to make as thorough an examination of the chest before operating as is made of the abdomen in all these acute abdominal cases. Deep pressure over the appendix region should not intensify the abdominal pain if the pain is of thoracic origin. Pulse, respiration ratio is disturbed, Rhovsing's sign not present. Owen's test is negative in pain of chest origin.

Typhoid fever or a perforated typhoid ulcer is excluded by the Widal test, leucocyte count, splenic enlargement and liver involvement and should therefore not be mistaken if these tests are made.

Perforations of the appendix, gall bladder, gastric and duodenal ulcer are to be differentiated from other acute emergen-

cies. It is important to distinguish early intra-abdominal perforation from acute intestinal obstruction. They have many symptoms in common, but there are usually enough characteristic symptoms present to distinguish them.

The pain in obstruction is generally paroxysmal and spasmodic in character, corresponding to the peristaltic waves. Its onset is more gradual and the shock is not so extreme in obstruction. Vomiting is a prominent and constant symptom in obstruction, and as the condition progresses becomes more frequent and finally becomes feculent. There is never feculent vomiting in perforation, though late peritonitis may give it. Constipation and inability to pass feces and gas always occur when the obstruction becomes complete. Abdominal distension in contra-distinction to the board-like rigidity if perforation exists. The distension is local at first and gradually becomes general; extreme abdominal tenderness is not marked in obstruction; and but little tenderness on pressure exists until distension is considerable.

Visible peristalsis is an absolutely diagnostic sign, but unfortunately is seen late, after the obstruction is about complete, and it may not always be present.

Acute obstructions are more often due to strangulated hernia than to all other causes combined, so that all hernial openings should always be investigated early, as it is responsible for more deaths than any other single cause. Other common causes are intussusception, volvulus adhesions and bands and annular carcinoma. In infancy, intussusception is the rule; in childhood and early middle life adhesions and bands; in later life cancerous stricture.

The symptoms, as already enumerated, of acute obstruction vary in severity with the site of the obstruction. The higher the obstruction, the more severe the symptoms, and especially the vomiting. It is possible to predict in this way something as to the part of the intestines obstructed.

Perforation of an abdominal viscus occurs with dramatic suddenness. The patient may be feeling well one moment and the next be

writhing in agony or may even fall in a faint with the suddenness of the onset.

The site of the pain is at first in the epigastrium, but soon moves downward as the escaping fluid collects in the pelvis, and soon the entire abdomen is painful, consequent upon flooding the peritoneal cavity with gastric or duodenal contents. The shock at first is extreme and should help to differentiate perforation from obstruction, in which there is little or no shock. The pulse is rapid and feeble, the face livid, extremities cold, temperature sub-normal. Reaction sets in early, within an hour or so, and is followed by a feeling of security, and both doctor and patient may now be deceived in considering the condition much improved, and therefore delay the most opportune time for successful surgical operation. If operation can be done within the first six hours, recovery is the rule; if it is delayed for twelve hours, recovery is doubtful; if twenty-four hours or more elapse before the perforation is sutured and abdominal drainage instituted, the death of the patient will probably occur. If the patient receives no surgical treatment and the perforation is into the free peritoneal cavity, it will run a definitely typical course, resulting in death from peritonitis in from two to three days.

There are five valuable diagnostic points to be borne in mind at this time that will keep us from error in recognizing promptly an intra-abdominal perforation.

1. Rigid, board-like abdominal wall, very tender throughout.
2. Pelvic peritoneum tender, as determined by rectal or vaginal touch.
3. Respiration shallow and of costal type.
4. Free fluid in the abdominal cavity.
5. Free gas in the peritoneal cavity.

The diminution or absence of liver dullness is a sign produced by free gas in the peritoneal cavity and is very significant of perforation, but, to be of value, there must be no abdominal distension, as distended intestines pushed up in front of the liver will give the same sign on percussion. An area of liver resonance in the mid-axillary line is of much more diagnostic value than resonance anteriorly, so that, if this reso-

nance can be obtained about two inches above the costal border, we can be quite certain of a perforation of a duodenal or gastric ulcer.

Perhaps the most recent, and by far the most valuable, of all the diagnostic tests in the recognition of the intra-abdominal perforations is the demonstration of the spontaneous pneumoperitoneum by the x-ray examination, called so forcibly to our attention by Vaughn and Brams in the November, 1924, issue of the "Surgery, Gynecology and Obstetrics".

These observers have proven that this sign makes possible an earlier, more definite diagnosis without discomfort or danger to the patient. It is easily made, requires no preliminary preparation or contrast meal. Fluoroscopy gives all the necessary information and no time is lost in waiting for pictures. No patient is too ill for the examination, as it does not require the upright position. Free gas was found by x-rays in thirteen out of fifteen proved acute perforation cases. Free gas was seen as early as two hours after the occurrence of the perforation. Only a small quantity of air is necessary for the gas bubble to be seen with the x-rays, and long before the diminished liver dullness can be detected on percussion, it will be visible under the fluoroscope. The appearance of the gas bubble is quite characteristic and is unmistakable. It forms as a bright, very distinct shadow, usually at the right cupola of the diaphragm and it tends to seek the uppermost region of the abdominal cavity. The bubble under the fluoroscope assumes a narrow, sickle-shaped zone, stretching horizontally across the upper abdomen and usually lying between the liver and the diaphragm. Its width depends upon the quantity of air that has escaped. A very important point is that the bubble shifts its location when the position of the patient is changed.

It was found that the gas bubble that is normally contained in the stomach is in quantity sufficient to be visualized by x-ray after it has escaped through the perforation in the stomach into the free cavity.

This sign is of inestimable value in the gastric and duodenal perforations, and it

has also been observed in perforations of the appendix and intestines as well.

Another sign of value in gastric and duodenal perforation is pain on the top of the right shoulder. If the pain is referred to the top of both shoulders early in the attack it is suggestive of perforation in the anterior wall of the stomach.

Acute pancreatitis or hemorrhagic pancreatitis is very difficult to differentiate, and especially from gastric or duodenal perforation. Its comparative rareness was formerly a help, but recently its relationship to gallstones and obstructive jaundice in its etiology introduces a more serious responsibility for its exclusion. A previous history of gallstones would add to the possibilities of a pancreatitis. In hemorrhagic pancreatitis the pain is even more agonizing than in gastric and duodenal perforation, is equal in its suddenness, and the shock is fully as profound, there is total inhibition of movement of the diaphragm, making respiration very difficult and cyanosis very marked. The board-like abdominal rigidity, however, is confined to the epigastrium, and the agonizing pain is also confined to the upper abdomen. Moynihan's sign is present, but shifting dullness, hepatic resonance and pelvic peritoneal tenderness should not exist, and pneumoperitoneum is not present.

The rupture of an ectopic pregnancy introduces an additional feature and complicates the diagnosis of an intra-abdominal perforation, in that an abdominal hemorrhage occurs, and sometimes to an alarming extent.

This emergency is comparatively common, is easy to diagnose when the symptoms are typical, and has seldom been mis-diagnosed by the physicians who are on the alert for it. Many lives have been saved in every vicinity by a speedy diagnosis and early operative treatment.

Typical symptoms are sudden and agonizing pain, vomiting, fainting or faintness, shock and collapse, rapid, thready pulse, subnormal temperature, tender, tumid abdomen, free abdominal fluid, tenderness in Douglas' pouch, all of which may confuse this condition with several others of the ab-

dominal catastrophies. The points to pay especial attention to in a patient previously well, with the exception, perhaps, of some menstrual irregularity, are its sudden onset, location of pain in the lower abdomen, faintness, acute anemia, subnormal temperature, absence of rigidity of the abdominal wall, signs of intra-abdominal hemorrhage, shifting dullness. These will leave little room for doubt.

A perforated pelvic appendix may easily be confused with a right sided tubal pregnancy, and the points of difference are hard to determine. The history of the menstrual irregularity would help; or previous trouble with the appendix would be suggestive of perforated appendix. In tubal rupture the abdomen is soft and tumid, and not particularly tender. In perforated appendix the abdomen is rigid, board like, tender throughout, exquisitely tender over McBurney's point. Shifting dullness is present in tubal rupture, and not in perforated appendix. In ruptured ectopic there is fullness in Douglas' pouch, with fullness and resistance in both broad ligament regions. There is fever and leucocytosis in perforated appendix, but a subnormal temperature in tubal rupture.

Moynihan's sign, Rhovsing's sign and Owen's test are all positive in perforated appendix. Shoulder pain may be present in ruptured ectopic pregnancy, and increased anterior liver resonance due to abdominal distension and pressure upwards of coils of intestines anterior to the liver as in perforated gastric and duodenal ulcer, but liver resonance in the mid-axillary line never occurs in the ruptured ectopic, and pneumoperitoneum is not present.

A pedunculated ovarian cyst with the pedicle suddenly becoming twisted and strangulated will give rise to acute abdominal emergency symptoms, pain, vomiting, abdominal rigidity and tenderness, fever and leucocytosis. If not seen until late, beginning peritonitis blurs the picture, and the diagnosis may not be possible.

If the presence of the tumor mass can be felt, or if the preexistence of the cyst is known, it is helpful in drawing conclusions.

Usually by combined vaginal and abdominal or rectal and abdominal examination the tumor can be felt as a rounded mass in the lower abdomen. The cases seen in my hospital experience came rather late and the question of perforated appendix came up for differentiation. In the absence of the tumor mass as guide and a negative previous history, it becomes a difficult problem. The absence of the signs of intra-abdominal perforation mentioned above, however, would probably be sufficient if carefully used to eliminate perforation of the appendix.

Obviously many of the acute abdominal emergencies and notably acute traumatic conditions of the abdomen have not been mentioned in this paper, but the same general principles called attention to will apply to all. To place emphasis on the importance of both accuracy and speed in diagnosis and surgical treatment has been my chief aim, rather than differential diagnosis.

Too much emphasis has already been placed by medical men, medical articles, and editorially on our surgical mistakes in opening the abdomen for medical conditions, notably pneumonia; and not enough emphasis has been placed on the purely medical mistakes in treating surgical conditions medically until too late or until peritonitis develops. Surgical mistakes are laid bare and are known to all by the operative findings, and become at once a matter of statistics. Figures have not been compiled or published to show us the mortality due to medical treatment too long continued in handling surgical conditions.

It is confidently to be hoped that as greater accuracy in differential diagnosis develops, and as more reliable tests come to us from x-rays and elsewhere, the number of surgical abdomens treated medically and the number of medical abdomens treated surgically will materially decrease.

Recent psychological tests have shown that college students do their best work in the middle of the week.

There are more than 7,000 hospitals in the United States and Canada, and nearly 2,000 orphanages and homes for dependents.

COMPLICATIONS OF INFLUENZA*

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During the epidemic of influenza in 1918 and 1919 there was a great deal of work done trying to fathom the mystery of influenza and its cause. After the epidemic the interest in it seemed to pass, and very little research has been done, and that without any apparent results; so we are now practically where we were in 1918 so far as treatment is concerned. However, we have learned to recognize and treat more efficiently the many complications which arise during influenza.

Every winter since 1918 we see more or less of a general epidemic of the disease and throughout the rest of the year conditions that are influenced by the person having had influenza. Pneumonia is an example of this. Formerly lobar pneumonia was one bane of the physician's life, and we then encountered ten times the cases we do since the prevalence of influenza. Broncho-pneumonia is very frequent among adults, a condition which was rare before the epidemic of 1918 and 1919.

I will mention a few of the complications that chanced to be in my practice during the past epidemic. In previous years recurrences were comparatively infrequent, but in the past winter recurrences were very common.

Those of you who do general practice have noticed that in different neighborhoods influenza takes on rather characteristic types, which also is true in different families. In one neighborhood there were quite a number of cases, nearly every one of which complained of pain and soreness over the gallbladder region. In this group both children and adults were similarly affected, some of these cases being severe enough that one was suspicious of gallstones passing. However, these cases did not run a cholecystitis course or show any jaundice; but evidently there was a severe inflammation of the gallbladder and adjoining structures.

In another neighborhood nearly every case suffered with hemorrhage from the nose and in another vicinity nearly every case first

complained of a severe pain over the lower pleural region.

A man in his forties was just getting through a severe attack of influenza when there developed in his abdomen a lump the size of a large orange which appeared to be an enlarged gallbladder, but without any symptoms. It disappeared in about a week.

A young man twenty-four years of age came down with what was apparently a mild case of influenza. When seen first by me on the third day of his sickness he had a persistent cough and was not using his right lung. On forced respiration breath sounds could be heard all over his right lung, but with all the tests I could make I was unable to find any consolidation or rales, or any reason why he was not using the lung in regular respiration. After about a week he began gradually to use the lung and at the end of the third week he resumed his mine work, apparently entirely well.

A Mrs. G., who has always been strong and healthy, was evidently taken with influenza, but kept at her work for about two weeks, when she finally had to take to her bed, at which time I was called. Her condition at this time showed a temperature of 100 2-5, pulse of about 100. She was having three or four weak spells a day. The left lung was clear except a few rales at the base and apex. The right lung showed no movement on palpation, and I could find no signs of consolidation on percussion. Auscultation showed suppressed bronchial breathing all over the lung. She was not at that time or afterwards raising any mucus or bloody sputum. With rest in bed the temperature soon came down to normal, but the cough was very persistent. The lung condition stayed about the same for six days, when some time between my daily visits the lung cleared up and was apparently normal.

A girl of 19, with a history of having suffered for the last two years with chronic appendicitis, was taken one morning with a severe pain in her right side. During the afternoon of that day she had two light chills. When seen first by me in the evening she

*Read at the regular meeting, Boulder County Medical Society, April 9, 1925, Longmont, Colorado.

had a temperature of 108, pulse of about 100. Her head was aching severely and she was listless and quite tender in the right quadrant. The next day she was feeling fine except for pain in her right side. At this time her temperature was normal, pulse about 100, the right quadrant somewhat rigid with tenderness over the appendiceal region.

She wish to be operated, so was taken to a hospital and operated. The appendix showed a marked chronic condition, and all of the bowel and omentum that showed in the incision were very much inflamed. Outside of her temperature staying up a little longer than it usually does in such cases and her bowels being slow to move, she has made an uneventful recovery. When taken home her father was in an attack of influenza, and four days after this she developed the disease and ran a very definite course.

I think there is no question in this case that this girl was operated during an attack of what might be called intestinal influenza. She had recovered when taken home, became reinfected from her father's attack, and ran a second course of the disease.

REPORT OF CASE OF VICARIOUS MENSTRUATION FOLLOWING ARTIFICIAL MENOPAUSE

R. J. GROOM, M.D.
BOULDER, COLORADO

Mrs. B. C., aged 27, housewife, born in Missouri, came under our care in 1920 with moderately advanced pulmonary tuberculosis. She was married at 18, has two children, oldest nine, youngest seven. No other pregnancies. Menses began at fourteen, regular and normal except painful for the first two days. For a year or so prior to 1920 she had been having severe cramps with nausea and vomiting for a week to ten days preceding each period. Because of the vomiting she lost more weight at this time than she was able to gain between periods.

In view of her pulmonary condition an anesthetic was thought unwise and sterilization by x-ray was advised. It was begun in August, 1921, thirteen treatments administered with a cessation of menstruation in December, 1921. Following this she had the

usual symptoms of menopause relieved to some extent by the intravenous administration of ovarian extract. Her general condition was much improved and she gained weight and strength.

In July, 1923, while visiting her parents in Missouri, she was suddenly attacked one morning with cramps in the lower abdomen, fullness and tenderness of the breasts and felt as though she were going to menstruate. Without cough she spat up two or three mouthfuls of blood, mostly dark and clotted. Her tuberculosis had been practically quiescent for a period of three years. Her general condition was good except for chronically infected tonsils. She immediately returned to Colorado and on physical examination no evidence of activity in the chest could be found. These symptoms recurred with the spitting of a mouthful of blood on two or three successive days at regular intervals of twenty-eight days. Her general health continued good, temperature and pulse normal. In September, 1923, it was decided to do a tonsillectomy, but on testing the clotting time of the blood it was found to be twenty minutes. She was given calcium lactate and large amounts of gelatin until the clotting time was reduced to normal, when the tonsillectomy was done. While on the calcium and for five or six months following she had no vicarious menstruation, but since that time there has been a recurrence of her symptoms, including blood spitting at regular intervals of twenty-eight days.

For the past six months she has been taking Alpine lamp treatments to the abdomen and thirty-one grains of ovarian extract intravenously on alternate days and last month had her first normal menstruation since the use of the x-ray, with no occurrence of hemoptysis.

One-third of the babies born in Georgia, nearly 23,000 annually, are not attended by a physician.

The University of Leyden, founded in 1575, celebrates its three hundred and fiftieth anniversary this year.

A manuscript of a book of forty thousand words was recently taken down on a shorthand machine in Braille characters and transcribed by a London typist blind from birth.

THE INTERSTATE POST-GRADUATE CLINIC TOUR

O. M. GILBERT, M.D.
BOULDER, COLORADO

Paris, June 25, 1925.

Boulder County Medical Society:

In accordance with my promise to you, I submit the following brief resume of the Post Graduate Tour of Canada, the British Isles and Paris. Of course, I can only touch the high spots in a letter.

The work began at Toronto on May 18th, where an excellent program was provided. There was nothing startling given out there, but it was of course a great pleasure and inspiration to observe the work in the laboratory where Banting and his associates developed Insulin. We were naturally curious to know what next. They are quite modest and did not lead us to expect anything comparable to Insulin to come out soon, but they are experimenting with a protein-free extract of liver cells which rather remarkably controls arterial hypertension, particularly of the "essential" type. It is not known just what the mode of its action is, but they assume it to be broadly a detoxicating one. They will publish their results soon, probably before this reaches you, so I am not violating any confidence by giving this bit of information.

At Montreal the work was excellent and the material abundant. Dr. Mason has shown some very striking results upon metabolism, by exposure of the body to sunlight, but more so to the rays of the mercury quartz lamp. He not only verifies the work of former investigators upon the effect upon calcium metabolism, but shows a very definite effect upon sugar metabolism and can render the effect of Insulin more marked and more certain.

In the laboratory of the Montreal General Hospital, great use is being made of the urea concentration test; and they regard it as the most practical test yet devised to determine the actual efficiency of the kidneys. Ambard's coefficient, representing the ratio of concentration in the blood to that in the urine, is made use of, but the simple urine test, as developed by Dr. Hugh McLean in St. Thomas Hospital, London, is re-

garded as giving all the evidence that is necessary in most cases. I later saw the work of Dr. McLean, and the practical results are most convincing. However, the Edinburgh clinicians were of the opinion that it was not of much value when the urea in the blood has risen to fifty milligrams or over, but of course the blood itself then gives the desired information, though it necessarily involves more complicated work.

Dr. Campbell Howard and Dr. Rabino-
witch, the physiological chemist, are also getting some rather striking results from the use of dioxyacetone as a substitute for other sugars in the treatment of diabetes. Rather curiously one hundred grams of it given either intravenously or by mouth, in case of impending coma, will actually lower the blood sugar as well as give relief from the impending ketosis. It is not held to be a substitute for Insulin but a valuable supplement thereto, and it is hoped that more patients will be able to dispense with their Insulin.

The trip from Montreal to Liverpool took eight days and a medical session was held each forenoon and afternoon and on most evenings as well.

In London a very special effort was made to give us the best in both medicine and surgery. The Prince of Wales was to have opened the conference and presided at the first session; but being away, his brother, the Duke of York, did the royal honors. The social entertainment was extraordinarily good, including a dinner by the Pilgrim Society at which many of the nobility as well as noted professional men were hosts. The dinner at Guild Hall, so famous in diplomatic history, was quite an event.

There were lectures each morning and clinics and demonstrations at the various hospitals each afternoon. Of the surgical work I can only speak from hearsay; but the general report was that it was good, but there was no report of anything extraordinary, though the work in general was said to be of a high quality.

There was a good deal of discussion, in the combined sessions, concerning the method of treatment of peptic ulcer. There was a pretty general recognition of the fact that unless there was serious bleeding or obstruction, a thorough medical treatment should be resorted to. The drift of surgical opinion seemed to be toward a resection of the ulcer, particularly in gastric ulcer whenever that was feasible. There were many strong advocates of partial gastrectomy when the ulcer was located in the distal half of the stomach. There is also a strong trend in that direction in Paris, Pauchet being a particularly strong advocate. However, the consensus of opinion seems to be that in the hands of the average surgeon, it is best to be content with the less formidable procedure in spite of the well recognized tendency to gastro-jejunal ulcer after gastro-enterostomy.

Hurst, at the old Guys Hospital, is doing some rather notable work upon pernicious anemia. Returning somewhat to the old idea of oral sepsis and achlorhydria being either directly or indirectly responsible for it, perhaps by the changed bacterial flora in the lower intestinal tract, he has centered his attention upon the clearing up of the oral infection, the administration of dilute hydrochloric acid up to two drams, three times daily with meals. This must of course be well diluted. Then the colon is thoroughly irrigated with normal salt and 2 per cent sodium bicarbonate solution daily. He also gives a diet rich in hemoglobin.

He maintains that the diagnosis can usually be made before nucleated red cells appear in the blood, or before the anemia is marked. For this he depends mostly upon the tongue and cord symptoms, combined with weakness, and then substantiated by the presence of macrocytosis and the necessarily accompanying plus color-index.

He is certainly showing some very striking results. He is ardently supported by Sir Arbuthnot Lane, but of course the latter finds it necessary to resect the colon, in many cases, to get rid of the lower bowel infection.

The clinicians in general recognize the

work of Hurst as being fundamentally good, but credit him with a bit of excess enthusiasm. The clinicians at Edinburgh and at Newcastle said they had not been able to get the striking results that Hurst had gotten and thought that he was including many cases in his reports in which the diagnosis of early pernicious anemia was questionable.

The work in the cardiac clinic of Sir Thomas Lewis is of a very high order, and the electrocardiograph is coming to show its practical importance, particularly in those lesser degrees of impairment of conduction due either to bundle changes or early myocardial changes, whether due to rheumatic or degenerative changes. It gives most interesting and useful information in many cases of "pseudoangina" as well as in the post-influenzal heart.

In pulmonary tuberculosis artificial pneumothorax is being more used and there is a tendency to use it much earlier in the disease. There is a moderate use of thoracoplasty in carefully selected cases.

In some of the hospitals phrenicotomy is being used, but at Brompton they were not enthusiastic over it. Morrison-Davis in the "North of Wales" Sanatorium is very enthusiastic over it, since he has adopted the method of avulsing the phrenic nerve instead of merely cutting it. He showed some very striking results. He is generally regarded as being the best authority in Great Britain on the subject. I shall see the work of Sauerbruch in Munich in this line and report upon it later.

The old Dublin and Belfast schools are gradually coming back into their own and will probably soon come again to justify the traditions of the old masters of these schools.

At Glasgow, Edinburgh, and at Newcastle-on-Tyne, the clinical work is sound and progressive, though conservative. There is a fine spirit at these old centers, and inspiring clinicians who "keep their feet upon the earth." I have seen no place in which one could settle down for a few months' study to better advantage than in either of the above. Sir Robert Philip at Edinburgh is showing some very remarkable results by

tuberculin testing of children of tuberculous parents, and when positive treating them with tuberculin before clinical symptoms arise.

Paris as usual is progressive and inspiring, and they are gradually getting back to their prewar basis, although they are much handicapped by want of funds.

It is particularly inspiring to visit the wards and amphitheater at the old "Charite", where such men as Laennec, Corvisart, Piorry, Potain and Cruveillier have worked and left their immortal impressions. The work of Professor Vidal was very fine. He is a wonderful clinician as well as research man.

At Laennec Hospital, Rist and Bernard are the outstanding men and are doing wonderful work in tuberculosis, especially in carrying out the Graucher plan of separating the newborn child from the tuberculous parent and placing him in good peasant homes for the first three or four years of his life. By this method the incidence of clinical tuberculosis in these cases has been reduced to one-fourth what it previously was.

Perhaps the most extraordinary work that I have seen is the preventive work in tuberculosis by Calmette at the Pasteur Institute. He attenuates tubercle bacilli by growing in a mixture for six or seven years and then administers these by ingestion, in the first few days of life. This is continued for about the first two months of life. The work was first done on calves with almost absolute protection; but he had to continue the attenuation of the bacilli for thirteen or fourteen years before he found it safe for infants. Now for three years he has used it upon infants of tuberculous mothers and even permitted them to continue nursing the mother, and so far less than 1 per cent have developed tuberculosis as against the former incidence of 40 per cent. His work is regarded by the clinicians of Paris as being exceedingly important, but not yet tried out sufficiently long or sufficiently controlled to prove the extent of its worth.

From here I go to Leysin, Switzerland, to see the work of Rollier in heliotherapy and

from there to Munich to observe the work of Sauerbruch upon thoracic surgery, phrenicotomy, etc., as well as some general clinical work, after which time I shall return to London for a few weeks work, since I want particularly to observe further the work on the heart in Lewis Clinic, that of McLean on the kidney, Hurst on pernicious anemia and Riviere upon the lungs.

I can highly recommend this sort of a trip to get a "birdseye view" of what is going on, but one then wants to settle down and get into close contact with one bunch of men in order to get the best results.

A VISIT TO THE SURGICAL CLINICS AND HOSPITALS OF NEW ORLEANS*

W. W. REED

BOULDER, COLORADO

Of the several surgical pilgrimages that I have made on various occasions none has been more pleasant, profitable or interesting than my recent one to the clinics and hospitals of New Orleans.

The three leading large hospitals are the Charity Hospital, Hotel Dieu and Touro Infirmary. The Charity is the oldest and largest hospital of the South, is owned and controlled jointly by the state of Louisiana and the city of New Orleans. It covers four blocks of ground, has over two thousand beds, supports ten operating rooms and has two large teaching surgical amphitheaters. On the average there are eight to ten operations a morning in each operating room, aggregating eighty to one hundred operations each forenoon.

Dr. Rudolph Matas, general surgeon, and at present President of the American College of Surgeons, famous throughout the South and known throughout the world for his studies and surgery of aneurisims, operates two days a week and holds a teaching clinic once a week in this hospital. He is a fascinating talker and a master of surgical technique. Dr. C. Jeff Miller, gynecologist and abdominal surgeon, operates and holds clinics here twice a week. Dr. Gilpi, also

*Read at the regular meeting of the Boulder County Medical Society, May 8, 1925.

gynecologist and surgeon, and the man who devised the Gilpi perineal retractor, is on the operating staff of the Charity Hospital.

It would be an impossibility for one to see even one-half the surgery done here in a forenoon, so he must select the part that he is most interested in and most desirous of seeing. The work for the day is posted, well classified and very accessible.

The Hotel Dieu is strictly private, elegant in structure and equipment, is French, highly endowed, has six hundred beds and five operating rooms. Dr. Nix is a leading surgeon, and does ten to twelve operations each morning. He is master of a beautiful and finished technique. He is cordial and polite in the extreme to visiting doctors.

Touro Infirmary, which is a very large hospital as well as an infirmary, is a very old institution of the South, and has a large bed capacity and six well-equipped operating rooms. To me, however, the fascinating feature at Touro was the infirmary. An enormous number of patients are treated in the infirmary each day. The general arrangement and plan reminds one very much of the Mayo Clinic. There is a large central hall with clinical, x-ray and serological laboratories and doctors' offices arranged around the border. Every imaginable branch of medicine and surgery and every facility for diagnosis and treatment have been arranged for in this infirmary.

The clinical material for the hospitals and operating rooms of New Orleans is drawn not only from this immense city of over 500,000 people, but from all of the Gulf states of the South. While the negroes predominate and a large foreign element is seen everywhere, the harbor, docks and great merchant vessels that anchor in the harbor contribute certain special tropical diseases and rather unusual surgical conditions, which are much more prevalent in New Orleans than in any of the large Eastern cities.

In the negroes, fibroids, hysterectomies, pus tubes, various forms of suppurative adenitis predominate. As elsewhere, an enormous number of gall bladders, thyroids, appendices, hernias, gastroenterostomies, radi-

cal breast amputations, and prostatectomies are seen.

The clinical and physical examinations of all operative patients are very complete; for instance, all chronic appendicitis cases as well as many other chronic abdominal conditions, are given a complete gastro-intestinal x-ray examination. Many cases of chronic appendicitis showed a filled appendix. Gall stones were seldom shown in x-ray films. At the Hotel Dieu the roentgenologist had that morning been able to catch a beautiful film of a gall bladder filled with stones and was exhibiting his find with great glee to every one in the operating rooms.

Spinal and local anesthesia are both very popular. Local anaesthesia is very skillfully used and many refinements in technique have been developed. Bad results occur in 20 per cent of spinal anaesthesias. This was used very appropriately, I thought, in a terrible crushing injury of the leg of an old man, in which immediate amputation was required. The Ben Morgan ether apparatus is popular and in almost universal use. Gas is used very seldom and ethylene rarely.

The histories in all the hospitals are very simple, pointed, and brief; all padding is omitted and only the essentials are included.

One interesting thing was the vast amount of good surgery being done by so many men. The personal element was not so conspicuous; technique and surgical procedures were standardized and uniform. There were no really poor operators; and the internes did much of the work, assisted by their teachers, who stayed on the job, and directed their work.

BOULDER HOSPITALS

THE NEW COMMUNITY HOSPITAL AT BOULDER, COLORADO

WHITNEY C. HUNTINGTON
Member Lay Board

For many years a hospital for Boulder, Colorado, has been provided by the University of Colorado for use in connection with its Medical School. Several years ago, the last two years work of the medical school was moved to Denver and in September, 1924, the first two years work was also

moved to Denver, where a new \$2,000,000 hospital and medical building has been provided.

On account of this change, the University had no further interest in operating a hospital in Boulder and planned on converting the building to other uses after another hospital could be provided.

The Chamber of Commerce undertook the task of raising funds to construct a new hospital. This was done by popular subscription. Mr. A. E. Saunders of Boulder was selected as the architect.

The hospital will consist of a new four-story unit 35 feet wide and 88 feet long, to be used in conjunction with the Boulder hospital now occupying the site. This Boulder Hospital is a large two-story brick residence, with finished space in the attic, which was converted into a hospital several years ago, but which has not been operated recently.

The present building will be remodeled so as to form a convenient working unit with the new section. The first floor will house the office and waiting room, the check room, the emergency operating room, x-ray room, laboratory, and wards to be used when the space provided in the new section is inadequate. The second floor will provide quarters for eighteen nurses and will be used for this purpose until the space is required for patients; at which time a separate building will have to be constructed for the nurses. The third floor of the present building will be used as a tuberculosis ward in conjunction with other rooms on the third floor of the new section. The old building can be adapted to its new use with a minimum amount of alteration.

The ground floor of the new section will be devoted to the kitchen, nurses' dining-room, boiler room, store room, laundry, and the isolation ward. The isolation ward is entirely separate from the remainder of the building and can be reached only through a sterilizing room where everything used by the patients in this ward will be sterilized.

The first and second floors of the new sections will provide private rooms and wards, diet kitchens, utility rooms, and toilets. At the north end of the hall on these floors

small porches are to be available for the use of convalescent patients.

The third floor of the new section is devoted mainly to operating rooms, a sterilizing room, an anaesthetic room, a nurses' work room, a doctors' scrub-up, and a delivery room; but a diet kitchen, a utility room, a toilet and private rooms for tuberculous patients are also provided.

The new section will provide thirty-seven beds in addition to the operating department, service rooms, etc. The present building will provide fifteen beds in addition to the nurses' quarters, office, waiting rooms, etc. The hospital will therefore be able to take care of fifty-two patients as planned at present. This can be raised to sixty-five by providing a separate building for the nurses.

In preparing the plans for the new section, every effort has been made to provide desirable space as economically as possible. The cost of the new section of the Community Hospital will be about \$60,000; its capacity will be thirty-seven beds, giving a cost of \$1,620 per bed. The number of cubic feet in the new section is 144,000 and the cost per cubic foot is forty-two cents.

The ground was broken for the new section in June, 1925, and the work is going forward in a very satisfactory manner.

BOULDER, COLORADO, SANITARIUM AND HOSPITAL

H. A. GREEN, Medical Superintendent
F. R. EASTMAN, Manager

The Boulder-Colorado Sanitarium and Hospital is enjoying a very good patronage for this time of the year, considerably above that for the corresponding time of previous years. The Sanitarium is endeavoring to follow out a steady program of yearly advancement in the betterment of the service which it offers to its patrons. It would be hard to improve upon the location or the surroundings of this institution for an ideal location for an institution in which to care for the sick. It is removed from the noise of the city, and yet is very readily accessible to those who wish to enter. The well-kept, spacious lawn and the cleanliness of the entire institution appeal to everybody and the

views offered by the nearby peaks are an inspiration themselves to the sick. The dietetic and hydrotherapy departments are efficiently supervised and patients are given the advantage of education along these lines. The dietetic department is under the supervision of G. W. Wakeham of the University of Colorado, and recently the institution was fortunate in securing the services of Dr. R. C. Whitman, also of the University of Colorado, to supervise its clinical laboratory, which has been nicely equipped to do all necessary clinical laboratory work. The institution cordially invites the closest inspection of the general public and extends special courtesies to all branches of the medical profession.

MESA VISTA SANATORIUM

R. J. GROOM, M.D.

Mesa Vista Sanatorium is an institution primarily intended for the care of incipient cases of tuberculosis, although anemias and general metabolic disturbances are admitted. It is a private institution with capacity of twenty-six beds. Miss Pearl Armitage, R. N., and Miss Daisy Furrow, R. N., are in charge. O. M. Gilbert is medical director; R. J. Groom, associate medical director.

Mesa Vista was established in September, 1919. It is located on Lovers' Hill in the northeast corner of Boulder, overlooking the city. It is affiliated with the Community Hospital, which is provided with an open air wing where advanced cases needing nursing attention can be cared for.

Mesa Vista is equipped with open air porches accommodating from two to five patients, each opening off of indoor dressing rooms. There is a large glassed-in dining room open to the sun on three sides. The institution is prepared to give all recognized treatment for this class of patients, including a large sun porch and Alpine lamp for heliotherapy and pneumothorax in properly selected cases. To date about 270 patients have entered Mesa Vista.

ACTIVITIES OF BOULDER COUNTY PHYSICIANS OUTSIDE COUNTY AND STATE SOCIETY MEETINGS

Dr. W. W. Reed has recently returned from a trip to New Orleans, where he attended clinics in surgery at the Hotel Dieu and the Charity Hospital. He also visited the city of Havana and other parts of Cuba.

Dr. Geo. H. Cattermole attended the spring post-graduate course in pediatrics at Washington University, St. Louis. Dr. C. W. Bixler attended the same course.

Drs. O. M. Gilbert, R. J. Groom and H. H. Heuston were present at the St. Louis meeting of the American Congress on Internal Medicine. Dr. Groom attended clinics in El Paso, Texas, early this year. Dr. Gilbert went abroad with the Clinic Tour in May this year.

Dr. F. H. Farrington in October, 1924, attended clinics in the Lying-In and Postgraduate Hospitals of New York City, studying obstetrics and anaesthesia. He also stopped in Crile's clinic for further study in gas oxygen anaesthesia.

Dr. W. K. Reed has made an extensive study and pleasure trip in the West, attending clinics in San Francisco at the St. Francis and University of California Hospitals.

Dr. C. L. La Rue, in September, 1924, attended the meeting of the American Academy of Ophthalmology and Otolaryngology in Montreal, following it with the annual course given by the society. He also attended the midsummer Congress of Ophthalmology and Otolaryngology in Denver, July, 1924.

Dr. Paul Farrington visited the Mayo Clinic in January, 1925, spending all his time in surgery.

Dr. Carbon Gillaspie attended the Chicago meeting of the American Medical Association, his chief interest being in the surgical section.

Dr. N. L. Beebe, in May this year, spent four weeks in clinics of the eye, ear, nose and throat, the Charity and the Hutchison Memorial Hospitals of New Orleans. He was later a visitor at Barnes Hospital, St. Louis. Last year he attended Chicago clinics for a similar period.

Dr. H. A. Green was present last year at the annual meeting of the American College of Surgeons in New York City.

Dr. C. E. Sidwell was a visitor at the Mayo Clinic for a week in April, 1924. He spent the rest of the month in Chicago clinics studying eye, ear, nose and throat.

Dr. Frank R. Spencer attended the meeting of the American Laryngological, Rhinological and Otolological Society at the Hotel Chase in St. Louis the last week in May, 1924. From St. Louis he went to Swampscott, Massachusetts, to attend the meeting of the American Laryngological Association, June 4th and 5th at the New Ocean House, where he read a paper on the Medical and Surgical Treatment of Laryngeal Tuberculosis. From Massachusetts Dr. Spencer went to Chicago to attend the meeting of the Ear, Nose and Throat Section of the A. M. A. He took part in the discussion of papers in St. Louis and Chicago and was a member of the Nominating Committee of the American Laryngological, Rhinological and Otolological Society for 1923 and 1924.

In November, 1924, Dr. Spencer attended a meeting of the Section on Instruction of the American Academy of Ophthalmology and Otolaryngology on November 9th. On November 10th, Dr. Spencer attended a meeting of the American Board of Otolaryngology and was elected vice president of the board.

SYSTOLE

There's no tree that bears gold fruit.—
Japanese Proverb.

The greatest successes in life are made
by concentration.—Carnegie.

He is lucky who forgets what cannot be
mended.—German Proverb.

Reading maketh a full man; conference
a ready man; writing an exact man.—Francis Bacon.

The fruitful tree is pelted with stones.—
Indian Proverb.

Men turn ever to the rising sun because
the setting sun is soon lost.—Italian Proverb.

For all things soon pass away and become
a mere tale, and complete oblivion soon
buries them.—Marcus Aurelius.

Science commits suicide when it adopts a
creed.—Thomas Huxley.

A man has but the one puny life, the one
tiny spark of faith. Better be venturesome
with both for God's sake, than over-cau-
tious, over-thrifty.—Robert Elsmere.

We each have our own story; how inter-
esting our life's romance would be if we
could but understand it ourselves.—Sand.

The burden is light on the shoulder of
another.—Russian Proverb.

There are forty kinds of lunacy, but only
one kind of common sense.—Proverb of
West Africa.

The tree that is cut down grows again;
the moon that wanes after a time waxes
again. Thus do wise men reflect and,
though distressed, are not overwhelmed.—
Sanskrit Proverb.

DIASTOLE

The following Binet questions and an-
swers are continued from the July issue:

Question: What ought a man to do when
he has missed his train?

Answer: Go back and ask for another
ticket for another one.

Take an automobile or an express man.

He'd try to change his ticket, or get crazy,
or take one of those little cars you drive
with your hands.

Go back where he came from.

You ought to board at some rooming house
and catch the train the next morning.

Wait for it till it comes back again.

Telephone to the policeman's.

Have patience, I'd get mad if it was me.

Telegram the train to wait at some other
depot, and get a special and go to that depot
so that he can get the other train.

Question: What is silly in this sentence,
"A man said, 'If I should commit suicide I
would not choose Friday because Friday is
an unlucky day.'"

Answer: Every time you commit suicide
you have bad luck.

I guess he thought he would not succeed
in killing himself.

Because it is a sin to eat meat on Friday.

He was not game enough to kill himself
at all.

It's a holiday or something.

Because Christ was born on Friday. May-
be he did not believe.

He wanted to live for Friday.

Because he's Catholic.

He could wait till Friday and kill him-
self, then he'd have his bad luck.

It brings everybody bad luck.

He's liable not to shoot himself in the
right place.

Question: What is justice?

Answer: If teacher told me to do some-
thing and I got it right, she'd say "Justice,
it's just right."—Do it for everybody; fix
everybody the same.—Peace.—He's a free
man.—A mint control.—To mind.—You've
just as much right to anything as anybody
else has.—C. S. B.

NEWS NOTES

The Leslie Dana Medal, awarded each year for the most outstanding achievements in prevention of blindness and saving sight, was awarded May 20th to Dr. Edward Jackson.

Surgeon-General Merritt S. Ireland of the U. S. Army addressed the Denver Medical Society at the Country Club on June 26th.

Dr. Philip Hillkowitz was recently re-elected president of the Jewish Consumptives' Relief Society and Dr. C. D. Spivak was elected secretary.

Dr. Ward Burdick of Denver is recovering from a serious illness.

Dr. F. B. Stephenson spent July in the southern part of Colorado, including the Mesa Verde Park.

Dr. Karl Roehrig recently spent several weeks in California.

Dr. Frank R. Spencer of Boulder was elected to active fellowship in the American Otological Society in May.

Dr. Harry Champlin has returned to Denver from his trip abroad.

Dr. Leon Block has returned from his trip to California, and has moved his offices to the Majestic Building.

Dr. G. B. Packard is spending some time in California.

Dr. Allen Krause of John Hopkins Hospital was recently the guest of Dr. J. J. Waring. While in Denver Dr. Krause gave three lectures on various phases of tuberculosis.

Dr. W. F. Blanchard has returned to Denver from a trip to California.

H. W. Wolcott, former assistant superintendent of the Wesley Memorial Hospital of Chicago, has recently taken over the position of superintendent of St. Luke's Hospital, Denver.

Dr. J. M. Shields of Denver spent the month of July in California.

Dr. H. G. Garwood of Denver is doing post-graduate work at the Mayo Clinic.

Dr. C. W. Thompson of Pueblo gave an address at the annual meeting of the New Mexico Medical Society on Mental Hygiene as a Public Health Problem.

Dr. Fred S. Modern, late of the Psychiatric Institute, Morristown, New Jersey, has joined the staff of Woodcroft Hospital, Pueblo.

Dr. Robert T. Frank is leaving early in August to take up his appointment at Mt. Sinai Hospital, New York.

Any physician knowing of a case of tertian malaria in Colorado is requested to communicate with Dr. Franklin Ebaugh of the Colorado Psychopathic Hospital.

WANTADS

Office space in Metropolitan Building, no equipment necessary. Apply Box 1, Colorado Medicine, 509 Imperial Building, Denver.

Young lady laboratory technician desires position in private or hospital laboratory. Experienced in usual routine work, bacteriology, blood chemistry and Wassermann. Apply Box 2, Colorado Medicine, 509 Imperial Building, Denver.

NEW BOOKS

GENERAL SCIENCE. By William H. Snyder. 12mo. New York: Allyn & Bacon. \$1.60. A textbook for class-room use.

THE QUEST FOR TRUTH. Pamphlet, Chicago, Ill.: Published by the Committee on Development, the University of Chicago. An account of scientific research at the University of Chicago.

SEWAGE DISPOSAL IN INDIA AND THE EAST. By G. Bransby Williams. 12mo. New York: D. Van Nostrand Company. A manual of the latest practice applied to tropical conditions.

CONCERNING THE NATURE OF THINGS. By Sir William Bragg. 8vo. New York: Harper & Brothers. \$3. The structure of the atom.

CHEMISTRY TO THE TIME OF DALTON. By E. J. Holmyard. New York: Oxford University Press. \$1. An introductory volume to the development of chemistry.

A CASE OF SPONTANEOUS RUPTURE OF THE SPLEEN. By Nino Villalobos. Pamphlet. London: John Bale, Sons & Danielsson, Ltd. Four pages on a medical case.

THE PRINCIPLES OF PUBLIC HEALTH ENGINEERING. By Earle B. Phelps. 12mo. New York: The Macmillan Company. \$3. For the medical health officer and the sanitary engineer.

THE ABSURDITIES OF EVOLUTION. By Guy Fitch Phelps. 12mo. Chicago, Ill. The Bible Institute Colportage Association. \$1.25. In which evolution is discussed as a fraud on the human mind.

AMERICANITIS — BLOOD PRESSURE AND NERVES. By William S. Sadler. 12mo. New York: Macmillan Company. \$2. Blood pressure, a result of whirlwind of haste. Characterizing the American people.

LISTER AND HIS ACHIEVEMENT. By Sir William Watson Cheyne. 12mo. New York: Longmans, Green & Co. \$2.75. The first Lister memorial lecture delivered at the Royal College of Surgeons of England on May 14, 1925.

THE TENNESSEE CAUSE CELEBRE. By Gabriel Wells. Pamphlet. Garden City, N. Y.: Doubleday, Page & Co. The pros and cons of the issue involved in the Tennessee trial.

THIRTEENTH ANNUAL REPORT OF THE MEDICAL DEPARTMENT OF THE UNITED FRUIT COMPANY. Anonymous. Pamphlet. Boston, Mass.: United Fruit Company. Organization, experiments, treatment and statistics of work by a commercial Medical Department chiefly in the tropics.

A GENERAL TEXTBOOK OF ENTOMOLOGY. By A. D. Imms. 8vo. E. P. Dutton & Co. \$12. Including the anatomy, physiology and development of insects.

HEALING IN THE CHURCHES. By Francis M. Wetherill. 12mo. New York: Fleming H. Revell Company. \$1.25. The history of faith healing with some account of the methods of Christian Science, Coueism and other movements.

MAGAZINE ARTICLES

- MAKING A WRECK OF THE VETERAN.** By William Edler. American Mercury, July.
- NEW MILESTONES IN MEDICAL PROGRESS.** By Watson Davis. Current History, July.
- EMERGENCIES OF CHILDHOOD.** By Dr. Henry L. K. Shaw. Delineator, August.
- DOCTOR SUNSHINE.** By Benjamin Harron. Good Housekeeping, July.
- PREVENTING VIOLENT DEATHS.** J. J. Durrett, M.D., and W. G. Strongquist. Survey, July 15.
- THE OPIUM CONFERENCE.** By Raymond Leslie Buell. Foreign Affairs, July.
- THE EMPLOYMENT OF THE BLIND.** By Rev. Barton R. V. Mills. Fortnightly Review, June.
- AT WHAT AGE ARE YOU WILLING TO DIE?** By Harvey W. Wiley, M.D. Good Housekeeping, July.
- THE SEX SIMPLEX.** By Viola Paradise. Forum, July.
- THE CONTINUING CURSE OF OPIUM.** By Constance Drexel. Ladies' Home Journal, July.
- HUXLEY'S RACIAL LINEAGE.** By Sir Arthur Keith, F.R.S. Nineteenth Century, June.
- RENAISSANCE OF HUXLEY.** By Henry Fairfield Osborn. North American Review, June-August.
- THE FUTURE OF LEPROSY.** By Victor G. Heise, M.D. North American Review, June-August.
- HOW EUROPE HAS DEVELOPED AIR AMBULANCES.** By Aime Gauthier. Red Cross Courier, July 1.
- WINDING UP THE RUN-DOWN CHILD.** By Helen Teal. Red Cross Courier, July 1.

BOOKS RECEIVED FOR REVIEW

- MEDICAL CLINICS OF NORTH AMERICA.** Volume VIII, Number VI, Boston Number, May, 1925. Philadelphia and London. W. B. Saunders Company.
- PRACTICAL CLINICAL PSYCHIATRY FOR STUDENTS AND PRACTITIONERS.** By Edward A. Strecker, A.M., M.D., and Franklin G. Ebaugh, A.B., M.D. Philadelphia. P. Blackiston's Son & Company.
- SIMPLIFIED NURSING.** By Florence Dakin, R. N. Philadelphia, London, Montreal. J. B. Lippincott Company.
- ABT'S PEDIATRICS.** By 180 specialists. Edited by Isaac A. Abt, M.D. Volume VII. Philadelphia and London. W. B. Saunders Company.
- THE SURGICAL CLINICS OF NORTH AMERICA.** Volume V, Number 11. New York Number. Philadelphia and London. W. B. Saunders Company.
- MODERN SURGERY.** By J. Chalmers Da Costa, M.D., LL.D., F. A. C. S. Philadelphia and London. W. B. Saunders Company.
- A MANUAL OF PHYSICAL DIAGNOSIS.** By Austin Flint, M.D., LL.D. Revised by Henry C. Thatcher, M.S., M.D. Philadelphia and New York. Lee and Febiger.

MEDICAL SOCIETIES

COLORADO GENERAL HOSPITAL

There has been a steady maintenance of attendance of patients in the institution during the past month; the number, as will be noted, is approximately the same as last reported, while the number of counties listed has fallen some. This is only in keeping with the seasonal fluctuation of admittances noted in all institutions of this character throughout the country, and no doubt will be followed in due time by a further growth in numbers. At the time of writing this article the institution is beginning to fill up again quite rapidly.

May

Number of counties represented.....	17
Number of patients received.....	124

Very gratifying to the authorities in charge is the constantly increasing attendance in the Out-Patients' Department. This has occurred in the face of poor transportation facilities, and contrary to the expectations of many.

The average daily attendance for the past month has been 110, with an average of 23 new cases per day. Working in close conjunction with this department is the Social Service Department, which interviews each prospective case on admission, and checks the entrance of curiosity seekers, cranks and those whose financial condition shows they are not entitled to free treatment.

Since the resignation of Mr. G. A. Collins as Superintendent, Miss M. M. Russell, Head of the School of Nursing, has been in charge, and will continue in that capacity until July 1st.

On that date Dr. Edgar Bocock will become Superintendent. Dr. Bocock has held the position of hospital inspector at the Walter Reed Hospital, at Washington, D. C. He graduated from the University of Virginia School of Medicine in 1913, and at the outbreak of the World War entered service, serving some time in Panama, and then in France as hospital commander. For four years after the war he was Superintendent of the 500 bed hospital at Santo Tomas, Panama, later receiving the appointment of hospital executive for all such institutions from the Panama government. Dr. Bocock is a member of the Virginia State Medical Society, a Fellow of the American College of Surgeons, and well qualified for the position he will assume.

E. R. MUGRAGE.

COLORADO PSYCHOPATHIC HOSPITAL

The Office of the Director gives the following data of the activities of this institution:

May

Number of counties represented.....	9
Number of patients received.....	34

This compares favorably with the past records, and represents but part of the total activities.

The Out-Patients' Psychiatric Clinic, a new undertaking, has had an attendance during the past month of approximately 100 individuals and 200 visits. This is remarkable for the first month of its existence, and shows the need of such a clinic. Fully two-thirds of the cases coming to the clinic are children. These clinics are conducted from 9-12 a. m., on Monday, Wednesday and Friday. Early in the month a traveling clinic was conducted in Trinidad, which aroused much interest.

E. R. MUGRAGE.

COLORADO OPHTHALMOLOGICAL

The regular meeting of The Colorado Ophthalmological Society was held on Saturday, May 16, 1925, in the medical society room, Congress hotel, Pueblo, Dr. G. H. Hopkins presiding.

J. J. Pattee, Pueblo, presented a young woman aged eighteen years who had had several operations for congenital cataract, and who, after an operation which had been recently performed at the Colorado General Hospital, in the hope of giving her better vision, had developed an attack of iridocyclitis. Discussed by W. H. Crisp, J. M. Shields, Don O'Rourke, W. A. Sedwick, Jas. M. Lamme and F. E. Wallace.

J. J. Pattee, Pueblo, presented a mine worker who had come on account of defective vision of the left eye which he attributed to coal slack having been kicked into the eye by a mule. The man's belief that his loss of vision was due to the injury appeared to be honest, but there was apparently no causal relationship between the injury and the impairment of vision. Industrial compensation was claimed. Discussed by H. M. Thompson.

J. W. Thompson, Pueblo, presented a man aged thirty-eight years who had come with a record of defective vision from early childhood, worse at night, and also a defect of hearing and speech. Ophthalmoscopic examination showed in each eye a small posterior polar cataract, many floating vitreous opacities, indistinct disc margins, small bloodvessels, and the characteristic pigment deposits of retinitis pigmentosa extending from near the periphery almost to the disc. Discussed by W. H. Crisp.

F. E. Wallace, Pueblo, presented a man aged forty-six years who since February had noticed smoky vision of the left eye and later of the right. The blood pressure was 250 millimeters, and urinalysis showed albumen. In each fundus there were numerous recent hemorrhages, and whitish areas representing the sites of former hemorrhages. Discussed by J. M. Shields, W. H. Crisp and C. E. Walker.

F. E. Wallace, Pueblo, presented a girl aged four years whose parents had noticed something wrong with the left eye since the age of eight months. At the age of about seven months the child had had two falls, in the second of which she had struck her left forehead against a sharp piece of furniture, although without apparent injury to the eye at the time. Under treatment there had been partial absorption of the opacity in the crystalline lens. Discussed by W. H. Crisp and W. A. Sedwick.

O. C. Wise, Pueblo (by invitation), presented a man aged thirty-four years who in 1921 had been exposed, in the course of his work, to a great deal of gas from the exhausts of automobile tractors, and who, after severe headaches, had noted loss of vision in the right eye. There was marked separation of the clinoid processes, and a sharply defined hemianopsia in the left eye. Discussed by H. M. Thompson, F. E. Peirce, W. H. Crisp and G. L. Strader.

G. H. Hopkins, Pueblo, presented a boy aged twelve years who had come complaining of a falling off in the vision of the right eye in the course of the past two years. There was an old retinochoroiditis extending from the extreme temporal part of the right fundus almost into the macula, and the vitreous contained numerous floaters. There were numerous irregularly dis-

tributed hard, small tumors beneath the skin all over the body. One of these tumors had been excised, and the pathologist had reported it to be a neurofibroma. Discussed by James M. Lamme.

WM. H. CRISP,
Secretary.

DELTA COUNTY

Friday evening, June 26th, the date of the Society's regular monthly meeting, Dr. and Mrs. Lee Bast entertained at a lawn and dinner party the members of The Delta County Medical Society and their wives.

At the scientific program, which was held at Dr. Cleland's office, there were Dr. Hick, President; Drs. Copeland, McConnell, J. F. Burgin, Cleland, Bolton, Day, Miller, Bast and McClanahan, members; and Drs. Isom Burgin and A. H. Stockham, two embryo medics, Lawrence Hick and R. B. McVey, and Dr. W. H. Fluallen, dentist, visitors.

Dr. Copeland read a paper on Rocky Mountain Tick Fever, which was followed by general discussion. Dr. McConnell read a paper on Scientific Medicine and Cults, which paper was discussed by R. B. McVey, Lawrence Hick, Drs. Stockham, McClanahan, Day, Bolton, Bast, and Cleland.

After a motion by Dr. Cleland for a vote of thanks of the Society to Dr. and Mrs. Bast for the evening's entertainment, the meeting was adjourned until July, when Dr. and Mrs. McConnell will entertain at their home in Somerset.

LEE BAST,
Secy. pro tem.

NORTHEAST COLORADO

The Northeast Colorado Medical Society met in regular session June 11th in Sterling. Regular routine business was attended to and the Board of Censors, who have had the matter of Dr. G. W. Sprecher's controversy with the State Board of Health under advisement for some time, made the following report:

We, the undersigned members of the Board of Censors of the Northeast Colorado Medical Society, having fully investigated the charges heretofore made against Dr. George W. Sprecher of Crook, Colorado, as filed with the State Board of Medical Examiners, and the circumstances connected therewith, beg leave to submit the following report:

The characteristics of all erythematous diseases vary so greatly that errors in diagnosis are frequently made by physicians of the highest standing in the profession. Particularly do the different epidemics of scarlet fever differ greatly in symptoms, and the character of the rash, so much so that often the most proficient physician is confused.

Even Holt in his second edition on Diseases of Children, page 1116, in discussing the complications of influenza in children, states:

"Cutaneous eruptions are not infrequent, and are often very puzzling. There may be a general eruption resembling urticaria or an erythema which sometimes simulates measles, but more frequently scarlet fever."

We do not have positive proof for diagnosis in the erythematous diseases such as we have in diphtheria and many other diseases, so often have to make a diagnosis on conjecture.

In the face of these facts, who shall we say was in error? We find that one of the patients mentioned in the complaint, to-wit, Floyd Stake, had been taken to Dr. F. E. Palmer just previous

to the time that the controversy about the character of the diagnosis began.

Dr. Palmer did not suspect scarlet fever, and operated a mastoid at the Sterling Hospital, and as a matter of completing his diagnosis made a smear of the pus from the mastoid, and found it to be almost a pure culture of pneumococci. Had the case been a complication of scarlet fever, the specimen would almost surely have shown streptococci and not pneumococci.

If error has been made in these cases by Dr. Sprecher, we believe that it was simply a mistake in judgment and diagnosis, such as any physician is liable to make.

It would further appear from the circumstances as we find them that a reputable physician would have been likely to have diagnosed said case as influenza as was done by Dr. Sprecher. We further find that Dr. Sprecher was not guilty of malice or unprofessional or dishonorable conduct, and that there are not circumstances that would warrant this Board of Censors in finding that he was guilty of negligence or malpractice, and that there was no intent on his part to do harm to anyone.

THEREFORE, the Board of Censors, after consideration of the facts, wishes to report to this society that in our opinion the charges presented to the State Board of Medical Examiners against Dr. George W. Sprecher of Crook, Colorado, are unfounded, unwarranted, and wholly unjust, and we recommend to the Honorable Board that such charges be dismissed.

(Signed) J. H. KELLOGG,

J. C. LATTA,

F. M. MEANS,

Board of Censors.

This report was unanimously adopted by vote of the society, as was also the following motion:

That it is the desire of the society to go on record to the effect that the charges against Dr. George W. Sprecher of Crook, Colorado, as now pending before the State Board of Medical Examiners are believed to be unjust and unfounded; and to further recommend that such charges be dismissed and that a copy of the Board of Censors' report be transmitted to the Secretary of said State Board of Medical Examiners.

The matter of this society's display on Medieval Medicine for the Colorado Medical Society meeting at Colorado Springs was left in the hands of a committee.

The Society adjourned to meet in September.

F. A. ALCORN,

President.

(Signed) H. M. COLLISON,
Secy. pro tem.

MEDICAL DEPARTMENT RESERVE

In the history of the world we see a succession of wars brought on by various causes, but largely due to the necessity for expansion of certain races or nations. In order for certain nations to expand it becomes necessary for them to do so at the expense of others.

As a result of this ever present tendency, the smallest nations find the necessity of having armies or trained men for their protection; for all have found that if defenseless they were sure to be invaded and subjugated.

In past history the fate of all armies that were hastily levied, without forethought or preparation, has been repeatedly the same; great mortality, both from disease and wounds.

In modern nations the need for some sort of a military organization as a nucleus has been recognized; and the care of the sick and wounded as well as prevention of disease has become a very important part of that organization.

In 1920, Congress, realizing the need for a substantial military organization in this country, passed a National Defense Act; which made one Army of the United States, composed of three components, namely: Regular Army, National Guard and Organized Reserves.

The Organized Reserve constitutes by far the larger component and it is to be organized in time of peace but subject to call only in a national emergency.

The War Department is at present trying to organize and train this component.

The medical profession as a whole is chiefly interested at all times in the conservation of health of the nation. In time of peace this is accomplished through civilian channels; taking care of the large mass of people by means of civil establishments, the military establishment being cared for by a small medical personnel.

In times of war the national man power becomes available for defense of the country, through mobilizations, which consists of collecting and assembling the physically fit into military units in readiness for war.

When this occurs it becomes necessary to call with these men sufficient medical personnel, from their civil status, to care for them.

As far as the medical profession is concerned, therefore, war simply means working along the same lines of conservation of health but under slightly different conditions.

In order to rapidly change from peace time conditions to that of war, it is necessary that those of the medical profession who may be expected to enter the new field, organize and familiarize themselves with such; for in this manner only can they expect to render to the nation the high standard of efficiency which they render to it in times of peace.

Realizing the necessity for such organization and training, Congress has established a Medical Department Reserve, composed of a Medical, Dental, Veterinary, Medical Administrative and Sanitary Reserve and as fast as officers can be obtained in these sections, they are being organized into definite local units in which officers are assigned according to their qualifications.

It is contemplated that the training will be by units as far as possible so that a unit when called will have received training along the lines in which it will function in time of war.

The status of this medical department reserve in Colorado is very commendable but it is believed that as yet the number of members does not represent the percentage of medical men in the state who would serve their country in time of emergency.

The military committees of the State Medical and Dental Societies are anxious to bring this Medical Department Reserve in Colorado to the front and help make Colorado first in preparedness for war as well as in peace.

The present policy of the War Department as regards appointment and promotion in the Medical Department Reserve is very lenient and it is hoped that the profession will take advantage of it and build up a strong Medical Reserve in Colorado.

Any information concerning this reserve can be readily obtained by writing to the chairman of your Military Committee.

COMMITTEE ON MILITARY AFFAIRS.

THE COLORADO STATE MEDICAL SOCIETY

(Incorporated November 1, 1888.)

The next annual session will be held in Colorado Springs, Sept. 29-30, Oct. 1, 1925.

OFFICERS, 1924-1925

President, Henry Sewall, Denver.

President-elect, G. A. Boyd, Colorado Springs.

Vice-Presidents, 1st, Ben Beshoar, Trinidad; 2nd, E. L. Morrow, Oak Creek; 3rd, J. H. Andrew, Longmont; 4th, William Whittaker, Burlington.

Secretary, F. B. Stephenson, Denver.

Treasurer, W. A. Sedwick, Denver.

Delegates to the American Medical Association:

Senior, L. H. McKinnie, Colorado Springs, term expires 1925.

Alternate, G. H. Curfman, Salida, term expires, 1925.

Junior, C. N. Meader, Denver, term expires, 1926.

Alternate, B. B. Blotz, Rocky Ford, term expires 1926.

Councilors:

	Term expires
District 1. C. F. Andrew, Longmont.....	1925
District 2. G. P. Lingenfelter, Denver....	1929
District 3. John R. Espey, Trinidad.....	1928
District 4. W. W. Crook, Glenwood Springs.	1926
District 5. A. J. Nossaman, Pagosa Springs.	1927

Constituent Societies, Times of Meeting, Secretaries**Arapahoe County**—Last Monday of each month; secretary, H. H. Alldredge, Englewood.**Boulder County**—Second Thursday; secretary, Margaret Johnson, Boulder.**Chaffee County**—First Tuesday of each month; secretary, F. A. Jackson, Salida.**Delta County**—Last Friday of each month; secretary, H. A. Smith, Delta.**Denver County**—First and third Tuesday of each month; secretary, L. V. Sams, Denver.**El Paso County**—Second Wednesday of each month; Secy., J. B. Crouch, Colorado Springs.**Fremont County**—Fourth Monday of each month; secretary, Edgar C. Webb, Canon City.**Garfield County**—Last Thursday of each month; secretary, L. R. Carson, Glenwood Springs.**Huerfano County**—Third Thursday of each month; secretary, L. W. Lee, La Veta, Colo.**Kit Carson County**—Quarterly, first Monday of December, March, June and September; secretary, Wm. L. McBride, Seibert, Colo.**Lake County**—First Thursday of each month; secretary, J. C. Strong, Leadville.**Larimer County**—First Wednesday of each month; secretary, V. E. Cram, Fort Collins.**Las Animas County**—First Friday of each month; secretary, P. W. Carmichael, Sopris.**Mesa County**—First Tuesday of each month; secretary, E. H. Peterson, Grand Junction.**Montrose County**—First Thursday of each month; secretary, C. G. Brethouwer, Montrose.**Morgan County**—Time of meeting (not reported) secretary, N. D. Wells, Fort Morgan**Northeast Colorado**—Second Thursday in each month; secretary, E. P. Hummel, Sterling.**Northwestern Colorado**—Second Thursday of each month; secretary, E. L. Morrow, Oak Creek.**Otero County**—Second Thursday of each month; secretary, B. F. Blotz, Rocky Ford.**Prowers County**—First Tuesday of each quarter; secretary, L. R. Mitchell, Eads.**Pueblo County**—First and third Tuesday of each month; secretary, D. E. Hoag, Pueblo.**San Juan Medical**—Second Saturday, January, April, July and October; secretary, H. A. Lingenfelter, Durango.**San Luis Valley**—Time of meeting (not reported); secretary, P. K. Dwyer, Alamosa.**Weld County**—Third Monday of each month; secretary, C. A. Ringle, Greeley.**STANDING COMMITTEES****Committee on Scientific Work:** G. B. Webb, chairman, Colorado Springs; E. D. Downing, Woodmen; J. H. Brown, Colorado Springs.**Committee on Local Arrangements:** L. H. Hill, chairman, Colorado Springs; W. A. Campbell, Colorado Springs; S. W. Schaefer, Colorado Springs.**Committee on Credentials:** F. B. Stephenson, chairman, Denver; M. C. Albi, Trinidad; E. P. Hummel, Sterling.**Committee on Public Policy:** D. A. Strickler, chairman, Denver; Edward Jackson, Denver; Jean Gale, Denver; W. W. King, Denver; Crum Epler, Pueblo; C. A. Ringle, Greeley; O. M. Gilbert, Boulder.**Committee on Publication:** G. A. Moleen, chairman, Denver (term expires 1925); T. E. Carmody, Denver (term expires 1926); W. H. Crisp, Denver (term expires 1927).**Auditing Committee:** G. W. Miel, chairman, Denver; J. H. Woodbridge, Pueblo; H. L. Baum, Denver.**Committee on Necrology:** W. C. Finnoff, chairman, Denver; G. C. Cary, Grand Junction; H. T. Little, Canon City.**Committee on Medical Education:** C. N. Meader, chairman, Denver; F. R. Spencer, Boulder; J. J. Waring, Denver.**Committee on Social Medicine:** T. R. Love, chairman, Denver; R. P. Forbes, Denver; J. A. Wenk, Colorado Springs.**Committee on Co-operation with the State Pharmacal Association:** H. W. Stuver, chairman, Denver; C. G. Hickey, Denver; H. A. Calkins, Leadville.**Committee on Medical Literature:** W. A. Jayne, chairman, Denver; G. B. Webb, Colorado Springs; A. J. Markley, Denver.**Committee on Hospitals:** C. O. Giese, chairman, Colorado Springs (term expires 1925); C. N. Meader, Denver (term expires 1926); Oliver Lyons, Denver (term expires 1927).**Committee on Military Affairs:** Cuthbert Powell, chairman, Denver; J. N. Hall, Denver; Crum Epler, Pueblo.**Committee on Careers of Members:** C. D. Spivak, chairman, Denver; Philip Hillkowitz, Denver; A. Freudenthal, Trinidad.**SPECIAL COMMITTEES****Committee to Confer with A. M. A.:** C. N. Meader, chairman, Denver; L. H. McKinnie, Colorado Springs; Philip Work, Denver.**Investment Committee:** W. A. Sedwick, chairman, Denver; W. A. Jayne, Denver; S. B. Childs, Denver.**Membership Committee (of 6)**

Denver: G. Heusinkveld, chairman; T. R. Love, Colorado Springs; L. W. Bortree.

Pueblo: J. W. Thompson.

Sterling: To be appointed.

Grand Junction: H. R. Bull.

Greeley: C. B. Dyde.

Committee to Assist in Goitre Survey, American Association for the Study of Goitre: Virginia Van Meter, Denver; H. E. Abrahams, Trinidad.

Colorado Medicine

OWNED AND PUBLISHED BY COLORADO STATE MEDICAL SOCIETY

PUBLICATION COMMITTEE

GEORGE A. MOLEEN, M.D., Denver

THOMAS E. CARMODY, M.D., Denver

WM. H. CRISP, M.D., Denver

EDITOR: C. S. BLUEMEL, M.D., 509 Imperial Building

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No. 9

EDITORIAL NOTES AND COMMENT

Printer's Pi

In a recent issue of Colorado Medicine the following statement was noted: 'If the testicle be malignant or entirely atrophic, it should be exercised'. Which calls to mind a series of articles on the Civil War which ran several years ago in a Chicago newspaper. In relating the capture of Ft. Sumter the spelling for a few days appeared as Sumpter and was then changed to Sumter. Several days later it was again spelled Sumpter. B. L. T. took notice of the error with a paragraph essentially as follows: "Far be it from me to criticise a contemporary, but I beg to call attention to the war correspondent of the Daily News that the Rebels knocked the 'p' out of Sumpter several days ago."

The local editor denies responsibility for typographical errors in this issue.

J. A. W.

This issue of Colorado Medicine is published in collusion with Dr. J. A. Wenk, who is editor-at-large for the Convention Number. Complaints should be sent to Dr. Wenk direct.

C. S. B.

Welcome, Wyoming

The Wyoming State Medical Society has decided to adopt Colorado Medicine as its official journal.

The transactions of the Wyoming Society will appear in Colorado Medicine, together with the papers presented at the annual meetings. The editor for the Wyoming section will be the present secretary of the State Society, Dr. Earl Whedon of Sheridan.

We welcome Wyoming to the pages of this publication, and trust that the association will be mutually profitable and be long continued.

C. S. B.

The Annual Meeting

The program of the State Medical Convention, which is published in this issue, represents no small amount of work by the program and other committees. The scientific exhibit, which is largely the result of the personal efforts of the President-elect, is an attempt at the graphic exposition of the history of medicine, which merits the support and should be of interest to every member of the State Society.

The entertainment committee has inaugurated an innovation by arranging for group luncheons for the men interested in various and allied specialties. These groups will be arranged as follows: Surgery, Internal Medicine, including the chest division; Pediatrics and Obstetrics, and Eye, Ear, Nose and Throat sections. The place of meeting will be announced each day and those intending to be present will be asked to designate their choice of groups. It is expected that these round table luncheons will be productive of some excellent discussions and will bring the men into closer contact during the convention.

J. A. W.

Fraternalism

The custom of having the larger county societies edit one issue of Colorado Medi-

cine each year is a commendable courtesy. The past year has been notable for several occurrences which can not fail to produce better relationships between the medical profession of the various cities. The practice of inviting some county society to present a program before another society is stimulating to the best type of medical study and writing and is conducive to a fine fraternalism. Twice within the year the profession in Colorado Springs has been invited by the dental society to hear men of national repute on subjects of mutual interest. Would it not be both profitable and courteous for our societies to devote one meeting a year to dental topics as allied to medicine and request the dental society to present the program?

J. A. W.

Throat Infections

The last fall and winter have presented throat infections of unusual interest to the doctor who likes to make exact diagnoses and treat his patients most scientifically.

Vincent's angina has appeared both in the acute and chronic forms. In its acute form it is often hard to recognize, but a smear will usually show the rods and spirilla, if treatment has not been instituted.

Another infection that was most interesting was caused by the pneumococcus. You probably had all these things checked by the laboratory, but if you did not, you missed an opportunity for study of causation and study of treatment.

This pneumococcus caused a velvety scarlet color of the pharynx and produced a well-defined arch or rainbow of this color on the soft palate. It was remarkable how uniformly this infection involved the soft palate and how limited or exact this area seemed to be in each case.

No less curious was the lack of symptoms referable to the throat and the severity of the constitutional symptoms. The fever, backache, generalized aching and nausea were pronounced. We gave it that undignified name of Flu. There was no cough, sputum nor pleurisy, but we called it flu. Some pathfinders even called it "stomach flu".

W. C. H.

Throat Tablets

We are taught that, when taken internally, the dose of potassium chlorate is one and a half grains. Many of us prefer not to give that much, for we firmly believe that it might damage the glomeruli of the kidney and that it damages the red blood cells. That it is highly toxic is not open to debate.

Every druggist carries "throat tablets" for sale, and one of the varieties handled by almost every druggist is one called "Chlorate of Potash Throat Tablets". No mixture or compound seems to make up this tablet and the catalogue of the firm lists them as five grain chlorate of potash tablets. The label on the bottle states that they contain five grains each of chlorate of potash. The patient is directed to take one internally every three or four hours.

One patient might easily take twenty or thirty grains of chlorate of potash daily instead of five grains and do himself serious harm.

What can we do about it? It would be a vast undertaking to try to induce druggists to stop selling chlorate of potash throat tablets. One thing we can easily do is to stop telling our patients to go by the drug store and get some throat tablets and use them—or aspirin tablets, empirin tablets, or mercurochrome solution. We can stop teaching the public the dangerous habit of prescribing for themselves.

W. C. H.

OFFICIAL CALL

Fifty-fifth Annual Session of the Colorado State Medical Society

The fifty-fifth annual session of the Colorado State Medical Society will be held at Colorado Springs, September 29-30, October 1. The House of Delegates, as has been customary, will meet the evening before the general meetings begin, Monday, September 28, at 8:15 p. m.

The Committee on Scientific Work, in charge of the program, consists of Dr. G. B. Webb, Chairman; Dr. E. D. Downing and Dr. J. H. Brown. The Local Committee on Arrangements consists of Dr. L. H. Hill,

Chairman; Dr. W. A. Campbell and Dr. S. W. Schaefer.

The President, Dr. G. A. Boyd, has taken a supervising interest in the program and has been instrumental in preparing for what is expected to be the most expansive meeting the Society has ever held. In addition to the usual number of scientific papers, there will be both a scientific exhibit and an historical exhibit.

While the Antlers Hotel is nominally the headquarters, all the meetings will be held in the Colorado Springs Auditorium and the whole auditorium floor will be given over to exhibits. Space will also be provided for commercial exhibits.

Probably for the first time in the history of the Society, the various constituent so-

cieties have been given definite tasks to perform and it is hoped that this will result in a more general interest in the meetings, with a large attendance.

A number of distinguished men of the profession, from other states, have been secured for places on the program.

Hotel reservations should be made in advance.

Members of the House of Delegates are requested to bear in mind that the first meeting of the House will take place Monday evening. Delegates will be furnished credentials in advance by mail.

The scientific program appears elsewhere in this issue.

F. B. STEPHENSON,
Secretary.

PRELIMINARY PROGRAM

Fifty-Fifth Annual Session, Colorado State Medical Society

TUESDAY, SEPTEMBER 29

Morning Session

1. The Practical Value to Medicine of Studies in Human Constitution.—*George Draper, M.D., New York.*
2. Whitman's Method in the Treatment of Fractures of the Neck of the Femur.—*S. Fosdick Jones, M.D., Denver.*

Discussion will be opened by George B. Packard, M.D., Denver, and Peter O. Hanford, M.D., Colorado Springs.

3. Fractures of the Pelvis.—*Z. H. McClanahan, M.D., Colorado Springs.*
4. Progress in Obstetrics During the Last Twenty Years.—*Foster Cary, M.D., Denver.*

Discussion will be opened by Beverly Tucker, M.D., Colorado Springs, and Herman R. Bull, M.D., Grand Junction.

5. The Surgical Treatment of the Ovary.—*Clarence B. Ingraham, M.D., Denver.*

Discussion will be opened by Philip Hillkowitz, M.D., Denver.

6. The Tuberculous Appendix; Its Local Reaction.—*Chauncey E. Tennant, M.D., Denver, and W. W. Haggart, M.D., Denver.*

Discussion will be opened by W. A. Kickland, M.D., and George A. Boyd, M.D., Colorado Springs.

Afternoon Session

1. Presidential Address.—*George A. Boyd, M.D., Colorado Springs.*
2. Visualizing Medical History.—*Henry Sewall, M.D., Denver.*

Discussion will be opened by O. M. Gilbert, M.D., Boulder, and Crum Epler, M.D., Pueblo.

3. Rheumatism.—*Carroll Edson, M.D., Denver.*
4. The Great Importance of the Thyroid in Relation to Certain Varieties of Heart Disease.—*James R. Arneill, M.D., Denver.*

Discussion will be opened by P. J. McHugh, M.D., and Jacob Campbell, M.D.

5. Pyelitis.—*William M. Spitzer, M.D., Denver.*

Discussion will be opened by George M. Myers, M.D.

WEDNESDAY, SEPTEMBER 30

Morning Session

1. Bronchoscopy as an Aid in the Diagnosis and Treatment of Suppurative Diseases of the Lung.—*Robert M. Lukens, M.D., Philadelphia, and William F. Moore, M.D., Philadelphia.*

2. Colorado as a Research Center in Tuberculosis.—*H. J. Corper, M.D., Denver.*

Discussion will be opened by E. H. Bruns, M.D., Denver, and Alexius M. Forster, M.D., Colorado Springs.

3. A Method for Producing Defatted, (or wax-free) Living Cultures of the Tubercle Bacillus, with a Preliminary Report on the Same as an Immunizing Agent.—*R. C. Whitman, M.D., Boulder.*

Discussion will be opened by H. J. Corper, M.D., Denver, and Charles Boisservain, M.D., Colorado Springs.

4. Treatment of Empyema in Children.—*George B. Packard, Jr., M.D., Denver.*

Discussion will be opened by J. H. Woodbridge, M.D., Pueblo, and John B. Hartwell, M.D., Colorado Springs.

5. Subphrenic Abscess.—*Wm. Senger, M.D., Pueblo.*

Afternoon Session

1. Kidney Function.—*A. N. Richards, M. D., Philadelphia.*

2. Kidney Pathology.—*Frederick Heller, M.D., Pueblo.*

3. Thymic Enlargement—with Report of Cases.—*Emanuel Friedman, M.D., Denver.*

Discussion will be opened by Elmer L. Timmons, M.D., Colorado Springs, and George Cattermole, M.D.

4. The Organized Medical Profession of Colorado—a Bio-ethnological Study.—*C. D. Spivak, Denver.*

5. Chest Diagnosis.—*Charles N. Meader, M.D., Denver.*

THURSDAY, OCTOBER 1

Morning Session

1. The Relation of Diseases of the Skin to Metabolism.—*Harvey P. Towle, M.D., Boston.*

2. Reaction of the Medical Profession to Blindness.—*Edward Jackson, M.D., Denver.*

Discussion will be opened by Royal W. Calkins, M.D., and John McFadzean, M.D.

3. The Significance of Certain Pathological Pupillary Changes.—*Guy H. Hopkins, M.D., Pueblo.*

4. Appendicitis, the Ochsner Method of Treatment.—*W. W. Grant, M.D., Denver.*

Discussion will be opened by Peter O. Hanford, M.D., Colorado Springs.

5. Chronic Dacrocystitis.—*C. E. Cooper, M. D., Denver.*

Afternoon Session

1. White Bile.—*Leonard E. Freeman, M.D., Denver.*

2. The Psychiatric Viewpoint.—*C. W. Thompson, M.D., Pueblo.*

Discussion will be opened by Edward Delehanty, M.D., Denver, and Franklin Ebaugh, M.D., Denver.

3. Sporotrichosis.—*A. J. Markley, M.D., Denver.*

Discussion will be opened by E. D. Downing, M.D., Colorado Springs, and George P. Lingenfelter, M.D., Denver.

4. A Preliminary Report on the Treatment of Diphtheria Carriers by Roentgen Rays.—*Sanford Withers, M.D., Denver*

HISTORICAL EXHIBITS

Boulder County

(Will have exhibit, subject not given).

Chaffee County

Mendel—*Dr. Geo. H. Curfman and Dr. F. A. Jackson.*

Delta County

Tularemia—*Dr. H. A. Smith.*

Denver County

History First Successful Appendectomy—*Dr. W. W. Grant.*

Obstetrics—*Dr. C. B. Ingraham.*

Milestones in Medical Progress. History of the Physiology of Respiration—*Dr. H. Sewall.*

Prehistoric Medicine—*Dr. Leonard Freeman and Dr. R. G. Corwin.*

History of Rhinology, Laryngology, and Dentistry.—*Dr. T. E. Carmody.*

Instruments of Precision—*Dr. Philip Hillkowitz.*

History of X-ray and Radium—*Dr. S. Withers and Dr. F. B. Stephenson.*

History of Ophthalmology—*Dr. Edward Jackson.*

History of the Cell, Embryology, with pictures of some of the old Anatomists—*The Department of Anatomy, University of Colorado Medical School. Drs. Wallin, Kingery and Scott.*

Genito-urinary History — *Dr. William Spitzer.*

El Paso County

History of Tuberculosis—*Dr. G. B. Webb.*
History of Cancer—*Dr. E. D. Downing*
History of Infant Feeding—*Dr. E. L. Timmons.*

History of Electricity in Medicine—*Dr. Wm. F. Drea.*

Fremont County

Harvey and the Circulation.

Huerfano County

(Will have exhibit, subject not given).

Lake County

(Will have exhibit, subject not given).

Mesa County

The Community Treatment of Typhoid Fever.

Northeast Colorado

Medieval History—*Dr. E. P. Hummel.*

Otero County

Greek Medicine.

Prowers County

Jenner—*Drs. Burnett and Pestal.*

Pueblo County

The Nervous System—*Dr. Fred Heller.*

Weld County

Pasteur.

SCIENTIFIC EXHIBITS

1. Bone Pathology—*Smithsonian Institution.*
2. Charts on Climate—*Charles F. Gardner.*
3. Heliotherapy. Pathology — *Fitzsimons Hospital.*
4. Hay Fever—*James T. Waring and L. M. Van Stone.*
5. Demonstration of Kidney Function—*A. N. Richards, University of Pennsylvania.*
6. Demonstration of Basal Metabolism Rate—*Philip Hillkowitz.*
7. Factors in Respiratory Infection and Tuberculosis; Experimental Demonstration—*Research Department, National Jewish Hospital for Consumptives.*
8. A—Exhibit. Sanatorium Progress.
B—Demonstration. Lung Lesions.
Sanatorium of the Jewish Consumptives' Relief Society.

9. Exhibits by several departments of the State Medical School.
10. Demonstration of Sanatorium Methods — *Cragmor Sanatorium.*
11. Pathology—*Modern Woodmen of America Sanatorium.*
12. Cause of Death in Breech Presentations — *Edith Boyd, University of Minnesota.*
13. Educational Exhibit—*Colorado State School for the Deaf and Blind.*
14. Metabolism in Diabetes—*Beth El Hospital, Colorado Springs.*
15. Exhibit from the Surgeon General's Library.
16. Rare Books—*Paul B. Hoeber, Medical Publisher.*
17. Exhibit by Gloeckner Sanatorium, Colorado Springs.
18. Exhibit by St. Francis Hospital, Colorado Springs.
19. Pathology of Acute and Chronic Gall Bladders—*Crum Epler.*
20. First Diagnostic X-ray Plate Taken on Western Hemisphere—*Michael Pupin, Columbia University.*
21. Nodules in Hard Palate and Jaws—*C. S. Kraemer and W. W. Cogswell.*

X-Ray Exhibits

1. Bismuth Injections of Lung Abscess by Ureteral Catheter—*W. W. Wasson.*
2. Visualization of the Gall Bladder After Intravenous and Oral Administration of Sodium Tetraiodophenolphthalein — *N. B. Newcomer and C. A. Conyers.*
3. The Mediastinum—*Colorado Springs Clinical Laboratory Company.*
4. Foreign Bodies in the Respiratory and Gastro-Intestinal Tracts—*F. B. Stephenson.*
5. New Growths Within the Chest—*S. B. Childs.*
6. Resolution in Pulmonary Tuberculosis. Pneumothorax—*Sanatorium of the Jewish Consumptives' Relief Society.*
7. Thoracoplasty. Focal Tuberculin Reaction. Special Apical Plates—*National Jewish Hospital for Consumptives.*
8. The Appendix by X-Ray—*L. G. Brown.*
9. Exhibit—*H. P. Brandenburg.*
10. The Chronic Catarrhal and Misplaced Appendix—*J. H. Daniel.*

11. Tuberculous and Non-tuberculous Disease of the Spine—*Modern Woodmen of America Sanatorium.*
12. Exhibit — *Bethel Hospital, Colorado Springs.*

Commercial Exhibits

Riggs Optical Company, Denver, Colorado.
 Horlick's Malted Milk Co.
 Victor X-Ray Corporation, Denver Branch.
 The Denver Fire Clay Co.
 J. Durbin Surgical Supply Co.
 Deshell Laboratories, Inc.
 Modern Woodmen Sanatorium.
 Arnold Dairy.
 Merrell-Soule Co.
 Dry Milk Co.
 Becton-Dickinson & Co.
 Geo. Berbert & Sons.

Entertainment Program

September 29th.....Smoker
 September 30th.....Reception
 October 1st.....Banquet

The local committee of The Ladies' Auxiliary Society will consist of Mesdames Gerald B. Webb, P. O. Hanford, J. H. Brown, H. C. Goodson, E. L. Timmons and G. A. Boyd. The Auxiliary will have their annual luncheon September 30th, followed by the annual meeting.

HISTORICAL EXHIBIT

Medical practice has always consisted of two parts, the first made up of treatment directed by beliefs, the second of treatment directed by known facts; one a diminishing factor, the other an increasing factor. The true history of medicine would record the conduct of practice as influenced by these two factors, knowledge and belief. With the increasing knowledge of the nature of life there has been a diminishing need of blind belief, and as the knowledge of the natural order unfolded the rational application of means to ends became more and more a part of the practice of medicine.

So far as we know, this is the first attempt of a State Medical Society to present even fragments of medical history by an exhibit. We need not be discouraged at the incompleteness of our efforts if they serve to interest us in the natural evolution of our profession.

The historic program as presented is incomplete. In some instances the subject to be presented has not been obtained by the committee. We hope to have exhibits not mentioned as we are not sure of securing them. The regular program which will be sent out will contain a more

complete list. In certain of the counties the subject only is mentioned. Where the county society did not divide its exhibit into various subjects the whole county is supposed to be responsible for the exhibit. In other instances, where various subjects were taken, individuals have assumed the responsibility for the whole subject.

If any errors have occurred we hope they will be called to our attention immediately, that they may be corrected.

EARLY BACTERIOLOGY

On the fourteenth of February, at the request of Dr. Lannelongue I went to the Sainte-Eugénie hospital, where this skillful surgeon was to operate on a little girl of about twelve years of age. The right knee was much swollen, as well as the whole leg below the calf and a part of the thigh above the knee. There was no external opening. Under chloroform, Dr. Lannelongue made a long incision below the knee which let out a large amount of pus; the tibia was found denuded for a long distance. Three places in the bone were trephined. From each of these, quantities of pus flowed. Pus from inside and outside the bone was collected with all possible precautions and was carefully examined and cultivated later. The direct microscopic study of the pus, both internal and external, was of extreme interest. It was seen that both contained large numbers of the organism similar to that of furuncles, arranged in pairs, in fours and in packets, some with sharp clear contour, others only faintly visible and with very pale outlines. The external pus contained many pus corpuscles, the internal had none at all. It was like a fatty paste of the furuncular organism. Also, it may be noted, that growth of the small organism had begun in less than six hours after the cultures were started. Thus I saw, that it corresponded exactly with the organism of furuncles.

—Louis Pasteur.

HARVEY ON THE CIRCULATION

William Harvy arrived at his conclusions on the circulation of the blood as a result of observations in pathology as well as physiology.

In his work "On the Motion of the Heart and Blood in Animals" he says: "I happened upon one occasion to have a particular case under my care, which plainly satisfied me of the truth: A certain person was affected with a large pulsating tumour on the right side of the neck, called an aneurism, just at that part where the artery descends into the axilla, produced by an erosion of the artery itself, and daily increasing in size; this tumor was visibly distended as it received the charge of blood brought to it by the artery, with each stroke of the heart; the connexion of parts was obvious when the body of the patient came to be opened after his death. The pulse in the corresponding arm was small, in consequence of the greater portion of the blood being diverted into the tumour and so intercepted.

"Whence it appears that whenever the motion of the blood through the arteries is impeded, whether it be by compression or infraction, or interception, there do the remote divisions of the arteries beat less forcibly, seeing that the pulse of the arteries is nothing more than the impulse or shock of the blood in these vessels."

THE COLORADO FOUNDATION FOR RESEARCH IN TUBERCULOSIS

GERALD B. WEBB, M.D., RESEARCH DIRECTOR
COLORADO SPRINGS, COLORADO

At the meeting in 1923 in London of the Hunterian Society, Rudyard Kipling delivered the oration which annually commemorates the research and investigations of the anatomist and physiologist, John Hunter.

"Man", said Kipling, "the imperfectly denatured animal, who cannot trust the evidence of his own senses in the simplest matter of fact; whose evidence in the simplest matter is coloured by his own iniquities; man, always the hunter, went up against darkness that cloaked him and every act of his being, to find out what order of created being he might be. He called it scientific research. It was the old quest under a new name. But, this time, the seekers who headed it, unlike the priest and the lawyer, admitted that they knew very little. Experience has taught them to be humble. For that reason, their knowledge was increased."

This tribute is the most beautiful description of the leaders of scientific research that has ever been penned. Could any paragraph be more complete in historical reference?

For more than twenty years I have sought to increase knowledge in regard to tuberculosis. The search, not entirely unproductive, has refreshed a weary practitioner; and slender financial support has been diverted to helping convalescent physicians and developing in them the spirit of research.

Tuberculosis is one of the chief causes of death, disability and misery throughout the world. It kills more than 100,000 people every year in the United States alone, thus accounting for about one-tenth of all deaths, and costs the nation something like a billion dollars yearly in loss of services from productive occupations, in addition to the great losses occasioned by its presence among food animals. Though governments spend huge sums investigating new methods of destruction for war, and millions are always available for research on problems of business, little support has been given to research for the control of tuberculosis. Well

endowed institutes for medical research, such as the Rockefeller Institute, have contributed in an incidental way to increase our knowledge of tuberculosis, but their major efforts have been claimed by the urgent need of solving problems of acute infectious diseases. The Trudeau Foundation has been productive of valuable results and it is the hope of the Colorado Foundation to emulate it. The tubercle bacillus has been identified for over forty years, but has completely resisted all the conventional methods of preparing anti-toxins and vaccines, which have proven so efficient in the fight against small-pox, typhoid, rabies, diphtheria, and other epidemic diseases. No commensurate efforts are being made against this disease, though the consensus of medical opinion is that it will be in turn subdued. Coincident with the efforts of the National Tuberculosis Association and demonstrations in public health work, such as that at Framingham, Massachusetts, the death rate from tuberculosis has been cut in half in the last twenty years. While we can confidently hope for a further lessening of mortality, yet without methods of vaccination and specific cure which have not yet been achieved, the disease can never be conquered.

The Colorado Foundation for Research in Tuberculosis was organized in May, 1924, as a not-for-profit corporation, incorporated under the laws of the State of Colorado, with a governing board of fifteen trustees. The form of the organization is modeled largely on that of the Rockefeller Foundation. All income is available for projects planned by the Board of Research Directors, acting in consultation with the Advisory Council and the Corresponding Members, and under the general supervision of the Board of Trustees. The Research Directors receive no compensation, salaries being confined to active laboratory workers.

It is proposed to raise an endowment of about \$500,000. The immediate objective is \$200,000, the income from which would be

sufficient to enable the work already undertaken to go forward. At the time of writing \$100,000 has been raised or pledged, and in addition an annual maintenance of \$6,000 has been guaranteed.

At the time of organization, the Foundation employed Dr. Charles H. Boissevain, a research worker trained under Professor Bordet of Brussels, and Dr. Charles T. Ryder, who was formerly a student of research methods under Dr. Theobald Smith, the present director of the Department of Animal Pathology of the Rockefeller Institute for Medical Research.

A laboratory was provided through the generous cooperation of Colorado College, where workers have had the advantage of ready access to all equipment in the physical and chemical departments of the college, as well as opportunities to consult on special problems with the professors in these departments.

The following is a summary of the research work from May, 1924, to July, 1925:

1. Investigation of the gas requirements of the tubercle bacillus. This subject has a possible bearing on treatment, since the gas concentrations of human blood and tissues can be controlled, within limits, by diet, drugs, altitude and other factors. Further experiments are in progress.

2. Studies on variations of virulence in tubercle bacilli. A continuation of research carried on for several years past by Dr. Webb and his associates.

- a. Attenuation of tubercle bacilli by incubation of tuberculous tissues.
- b. The production of chronic experimental tuberculosis in the guinea pig by various means.
- c. The production of chronic progressive fatal tuberculosis in guinea pigs by inoculation with attenuated strains of tubercle bacilli which usually appear virtually harmless.

2 c is of importance in connection with any method of protective vaccination which employs living tubercle bacilli of low virulence. In the light of these observations such methods seem to involve considerable danger.

These studies are being continued and will

form a part of the investigation of the biology of the tubercle bacillus which has been undertaken by the Research Council of the National Tuberculosis Association.

3. Studies on the physiology of postural rest and its curative effects in tuberculosis.

4. Studies on the relation of products of fat metabolism to tuberculosis. These studies were undertaken with a view to elucidate the effect of diet and the "rest cure" on the tubercle bacillus, and to investigate the possibility of hastening recovery by controlling the quantity of these products of the body.

5. Investigation of the changes in autolysed tissues, and the effects of products of autolysis on the tubercle bacillus.

6. Studies on hypersensibility and anaphylaxis. These are undertaken to find a cause for the sensitiveness of the tuberculous organism to the products of the tubercle bacillus, which seems to be a major source of symptoms in the disease.

Some of this work is done in collaboration with Dr. S. W. Schaefer.

- a. Food requirements of the tubercle bacillus. The cultivation of tubercle bacilli in blood and plasma has been studied in collaboration with Dr. Eric Webb. A method of obtaining single colonies, discovered by Dr. Boissevain, is a result of this work. These studies are being continued.

- b. The effect of feeding certain amino acids on resistance to tuberculosis in experimental animals is being studied in collaboration with Miss M. Warner.

- c. Studies on the importance of small amounts of radio-active substances to the growth of tubercle bacillus will be reported shortly.

8. Effect of high altitude on the human organism. (In collaboration with Mr. B. W. Crockett).

Preliminary report: A Study of the Sodium, Potassium and Chlorine Ions of the Blood under Different Conditions, submitted by Mr. Crockett as candidate's thesis for the M. A. Degree at Colorado College. Experiments are being continued.

9. Possible sources of ultraviolet radia-

tion in the body. (In collaboration with Dr. W. F. Drea).

A method has been found by which ultra-violet radiation can be applied to any part of the intestinal tract. The possibility of its clinical application is being studied.

10. Some observation on Dreyer's vaccine. (In collaboration with Dr. G. B. Gilbert).

11. Determination of the types of pneumococci present in the mixed infections of pulmonary tuberculosis.

12. Studies on the effect of forced exercise on resistance to experimental tuberculosis.

The cure for tuberculosis can only be found by long and laborious research with every step controlled by the most careful experimentation. The remedy must unequivocally cure any animal which has been infected with active tuberculosis. When the certain cure of such animals can be effected, then may human beings at last believe that tuberculosis can be conquered.

The successful building up of facilities for research in tuberculosis in Colorado Springs will enable many physicians and investigators to be provided with laboratory equipment and guidance. For workers to be encouraged, greater financial support is necessary. There are many in this community whose health and education would be equal to the task of laboratory technic. An original mind can keep many technicians occupied.

Pathological studies have taught us that Nature can both "vaccinate" human beings against tuberculosis and can also effect a cure. By research we attempt to discover how Nature accomplishes these and how they can be safely imitated.

"Our whole knowledge is founded upon observation, experience is the interpreter between artful nature and man". So wrote Leonardo da Vinci. The honest investigator of Truth rarely fails to develop some new knowledge. Every discovery, however insignificant, can be compared to the birth of a new born child.

Osler states that "On the title page of one

of the great books of science, the 'Discours de la Methode' of Descartes (1637) is a vignette showing a man digging in a garden with his face towards the earth, on which rays of light are streaming from the heavens; beneath is the legend 'Fac et Spera'—(work and hope)". This might well be the motto of the Colorado Foundation, an institution which should enter on its second year with help and encouragement from all.

CUTANEOUS MYIASIS

Case Report

T. R. KNOWLES, M.D.

COLORADO SPRINGS, COLORADO

The deposition of fly larvae on open and discharging wounds is not uncommon in the United States, and the infestation of the natural cavities, such as the nose, sinuses, ears and occasionally urethra, is reported; and the nose and ears as seats of attack are common in certain South American countries, particularly where a discharge is already present. In Russian Turkestan, central Asia, Goldschmidt reports the infestation of the conjunctiva, with burrowing of the parasite into the eyeball, and frequent impairment or destruction of vision. Bishopp, quoting Sargent, states that in the elevated regions of the Sahara the sheep bot (*Aestrus Ovis*) commonly attacks the conjunctival and nasal mucous membranes of man from March to June. Pumpelly reports a case of massive, repeated, infestation of feces, in the human, with larvae of the fly *Eristalis tenax*, from drinking polluted water, the natural habitat of this species, known commonly as the rat tailed lava.

The affection of the unbroken, healthy skin with this type of organism is apparently much more rare, as but five cases are reported in the American literature and one probable case in the British journals. Two cases, in adults, were reported by Rudel, from South Dakota, as "Creeping Eruption", characterized by a scaling burrow, tortuous in outline, inflamed at its distal extremity, advancing about one and one-half inches in twenty-four hours, affecting the

upper extremity in one case and the face in another, the burrow marking the advance of the maggot under the skin. Walker, of Toronto, in 1920, reported two cases in infants, (and another in 1922, with one probable case from Pittsburgh. Style, in England, in June, 1924, described a similar condition in the scalp of a four year old child, though caused by a different species, (the common Ox Warble *Hypoderma lineatum*), but failed to state the prior condition of the scalp.

Case Report

History: An otherwise healthy female, aged nine months, with no prior illness, residing in West Colorado Springs, was noted, by its mother, on June 6, 1923, as having an eruption harboring worms under the skin. The child ordinarily slept out-of-doors, unprotected from flies, and with the affected parts exposed. It had been bathed the night before and the skin was perfectly clear at that time, but following the morning nap the condition described had presented, showing thus the rapidity of its development.

Physical Examination: The child showed, for the most part, a punctate eruption, consisting of eleven discrete lesions on the upper third of the right forearm, with three similar lesions on the neck, and a very fair, clean, healthy appearing skin elsewhere over the body. The lesions apparently were in various stages of development, the earliest appearing as pin-point sized, very slightly raised, black points, with slight hyperaemia about them; later lesions were clear vesicles, the size of the head of a pin, and the oldest lesions had gone on to pustule formation, with a still greater increase in the surrounding inflammatory area, the latter then being about the size of a quarter. On opening the pustules, maggots could be expressed, and these, if not immediately removed from the skin, promptly found their way back into the lesions.

Treatment: All lesions were opened, their contents expressed, and an antiseptic dusting powder applied daily for a time. The infant was protected from flies thereafter.

Subsequent History: The lesions went on

to prompt healing with slight brownish pigmentation in the involved area, which lasted about three weeks. There was never any constitutional reaction to the disease.

Pathology: The maggots were 4 to 5 mm. long, very actively motile, and identified by Mr. Laake, through the kindness of Professor Bishopp, of the Bureau of Entomology, U. S. Department of Agriculture, as a first stage specimen of the lava of the flesh fly *Wohlfortia vigil*, the same as causing the cases of Walker and Rudel.

Comment

This case of infestation of the healthy human with larvae of the flesh fly is a condition commonly found in the lower animals, and is of decided importance in them as a cause of morbidity. Its normal life cycle is as follows: the eggs are deposited on the skin or hair where they develop and soon penetrate the skin, migrating, in many cases, in the tissues, surprising distances, and forming the familiar subcutaneous grub. When fully developed, the grub penetrates the skin, dropping to the ground and burrows here to undergo the stage of development known as pupa, finally emerging as the mature insect.

Of some importance is the possibility of gradual adaptation to the pure human parasitic type in regions favorable, or where the abundance of the natural host has become reduced.

As disease carriers, their fairly certain relation to the dissemination of the disease known as limberneck in fowls, and in turn, the possible relation of this condition to human epidemic poliomyelitis, makes the report of these cases, though apparently rare, important, as widening our understanding of epidemiology.

I am indebted to Drs. Wm. A. Riley and F. C. Bishopp, together with Mr. E. W. Laake, for their kind assistance in above work.

ETHNOLOGY

Rumanians plunder and raid,
Armenians mumble and moan;
Jugo-Slavs juggle and struggle and guggle,
But Kurds have a whey of their own.

—Henry William Hanemann.

CHRONIC NON-TUBERCULOUS LUNG INFECTIONS

EDGAR D. DOWNING, M.D.

WOODMEN, COLORADO

The number of chronic, non-tuberculous lung infections which are being sent to the sanatoria for the care of the tuberculous is increasing. The records of the Modern Woodmen of America Sanatorium show a gradual increase in the percentage of this group of cases from 10 per cent non-tuberculous in 1916 to 20 per cent in 1925. What some of the more unusual of this group of non-tuberculous cases are, and how they may be recognized is the purpose of this paper. The outstanding feature is, of course, the fact that they all have had negative sputum tests for the tubercle bacillus. The one exception to this point is in the case of diphtheroid infections which will be explained under that heading. In a general way symptomatically these cases mimic tuberculosis, since they have cough, expectoration, fever, weakness. The expert lung diagnostician can, in most cases, classify the lung lesion correctly by its location (more frequent at the bases), by the accompanying nose and throat findings, (rhinitis and pharyngitis of a crusting character), though of course with the physical findings alone he may call the process a bronchiectasis, or, what is more common, a lung abscess. Right here it must be said that if the clinician does not recognize the possible mycotic or bacterial nature of the lesion and set his laboratory to work on the problem, the cases will remain in the great group of non-tuberculous infections whose etiology has not been worked out. The bacteriologist must be prepared and suspect the type of infection or these unusual cases will not be properly diagnosed. I have looked at sections of oidiomycosis of the larynx for a week before it finally dawned on me that the ring-shaped budding bodies scattered among the leucocytes were parasites and not body cells.

It is the custom now to speak of infections with the fungi and with certain branching bacteria as the mycoses. Beside mycotic infections, lung lesions due to the diphtheroid group and fuso-spirochetal organisms will be described.

Oidiomycosis

The medical nomenclature of the pathogenic fungi is confusing. Writers use the name *Blastomycetes* in a loose sense to include the organisms causing granulomatous and suppurative lesions known as blastomycosis, oidiomycosis, coccidioidal granuloma and yeast infections. Stoddard and Cutler¹ use the terms yeast infection, torula infection and oidiomycosis, discarding the name blastomycosis. Coccidioidal granuloma is a distinct disease caused by an organism which is an ascomycete on account of its endosporulation.

Our case of oidiomycosis at first did not have well marked chest findings, but did have an ulcerated and nodular epiglottis which was diagnosed as either syphilis or tuberculosis. The sputum was always negative. A piece of the epiglottis removed for tissue diagnosis was reported on by Dr. William Ophuls as follows: "Sections show marked inflammatory infiltration of connective tissue and considerable proliferation of the surface epithelium. In the proliferated epithelium several microscopic abscesses. In the inflamed connective tissue, many large multinuclear giant cells of Langhans type. In the latter and in the abscesses many small spherical budding encapsulated parasites." The diagnosis in this case could not be made without resort to biopsy.

Diphtheroid Infections

White² reported four cases of what he termed diphtheria infection of the lung. Since then we have had three cases of diphtheroid infections of the nose, throat and lungs. Mellon³, after a study of forty-five strains of the diphtheroid group, concludes that any of the group may become pathogenic under favorable conditions.

These patients gave a history of an acute lung infection from which they never fully recovered. One man dated his trouble to a nose operation. The history is that of a loss of weight with languor, dyspnoea, hoarseness. The sputum is mucopurulent, and may

be blood streaked, and is not over one ounce in a day. Physical examination shows moderately coarse rales at the base. The x-ray shows some increase of each lower bronchus with an increase of the hilus shadows. The nose and throat show the changes common to an atrophic rhinitis. The pharynx and larynx are red and dry. Crusts may be seen in the trachea. The course of the disease under sanatorium regime is uneventful. An occasional 99 degree temperature, with some lessening of the amount of sputum, occurs. The physical signs and x-ray are practically the same after six months treatment. One patient was given two doses of toxin-antitoxin mixture which was followed by a severe reaction each time. Three years after discharge he has no sputum, some cough and works regularly.

The diphtheroid organisms are found in the routine sputum examination. They occur in profusion and morphologically at times cannot be distinguished from true diphtheria. They are not pathogenic for guinea pigs in the sense of a true diphtheria bacillus—that is, two ml. of a 48-hour broth culture of a pure culture will not kill a pig. Two of the cases have had a report of tubercle bacilli in their sputum. This is most significant because in a smear of diphtheroid sputum stained for tubercle bacilli a few acid fast granules can be found. In one case my own technician reported tubercle bacilli three times until the difference between the acid fast granules in the diphtheroids and the body acid fastness of tubercle bacilli were explained to him. Repeated guinea pig inoculations of these sputa with acid fast granules were negative.

Streptothrix Infection

Streptothrix infections in our records, which are made up of cases from all over the United States, are rare. Ten years ago we had one case which we worked out very thoroughly by cultures, skin tests and treatment. Since then we have examined all suspicious cases with this diagnosis in view and have not found another case.

Here again the lesion in the left base was characterized by dullness, scattered rales, increased fremitus, and increased whispered

voice almost to pectoriloquy. The x-ray showed a heavy dense shadow from the third interspace to the base. The history was that of a tuberculous case, namely, la grippe, followed by cough, expectoration, languor and a moderate hemorrhage. The sputum, of a yellow white color, amounted to a half ounce a day. Scattered through it were numerous yellow granules which on smear and culture proved to be streptothrix. With a Gram stain the casual microscopist would call the organisms streptococci, but closer observation shows the brownish bodies branching filaments with the deep blue purple granules in them. On culture the branching is pronounced. This patient was given large doses of potassium iodide and held at the Sanatorium for six months. He has reported to us for examination every two years since 1915. The lung findings by x-ray are the same as on his discharge—obliteration of the left lower lobe. He does not raise sputum, but has to live a restricted life.

Systemic Sporotrichosis

Skin infections with sporotrichosis are not uncommon, but recognized reported infections of the lungs are rare⁴. As knowledge of the disease becomes greater, more cases will be reported. In the case about to be described the diagnosis would have remained as originally made clinically—Hodgkin's Disease—but for the fact that we made cultures of pleural fluid, and removed a gland for diagnosis, from both of which the sporotrichum was grown.

Clinically, this man of 18, with marked swelling of the glands of the submental, submaxillary, cervical, parotid, axillary and inguinal regions, with a temperature ranging around 103, and a high white count, had the appearance of a Hodgkin's disease. The home physician diagnosed the lesion as tuberculous glands of the neck and axilla.

This case brings home again the fact that biopsy is necessary for a correct diagnosis in gland infections. Our staff, on three occasions recently, has been divided on the clinical diagnosis of glands in the neck. The pathologists are also criticised for their non-agreement in the diagnosis of Hodgkin's

disease. In the present case the sections of a the gland had much the appearance of a Hodgkin's as described in the text books. Eosinophiles and large mononuclears were quite numerous. Had we not been interested in trying to cultivate some organisms from what we thought was a true Hodgkin's disease, the diagnosis of sporotrichosis would not have been made.

Fuso-Spirochetal Pneumonia

Infections of the lungs with the organisms of Vincent's angina, or, as it is commonly known, trench mouth, is a definite clinical entity which has been called by Pilot and Davis fuso-spirochetal pneumonia. In lung lesions streptococci are usually associated with the Vincent's organisms, and it seems to be the combined poisons from the fusiforms, spirals, and cocci which produce the putrid lesions. Davis says that in experimental animals he can produce pyogenic lesions with streptococci and that when he adds the anerobes of Vincent's angina the lesions in the lungs become putrid. Fusiform or cigar-shaped bacilli and spirals are found in many mouths. That such mouths are healthy, I do not believe. Close questioning and observation will show that such people have occasional sore gums, sore throats of a night's duration or occasional attacks of mild laryngitis. Of course it is only when the opportunity presents, such as an enesthetic of an epileptic fit, that they are carried to the lung in a large enough dose to cause a lesion.

The examination for Vincent's organisms is one of the simplest tests done in a laboratory. Smears of the putrid sputum are stained with dilute carbo-fuchsin and examined with an oil lens. In some smears bacilli predominate—in others spirals. Tunicliff, by cultivating these two forms, believes that they are different forms of the same organisms.

In Europe in 1910, Buday reported thirty-five cases of this disease. Not until 1924, when Pilot and Davis reported a similar series, has there been more than a few cases reported in American literature, though the disease has certainly existed, but has been

recognized only as a terminal gangrene of the lung.

This disease has presented itself to us in two types—the pneumonic and the bronchiectatic. In both, when once the disease has become progressive, the stench is terrible.

The Pneumonic Type: Case No. 5910 came to us with a home diagnosis of lung abscess. He raised 15 ounces of three-layered foul smelling sputum a day. His temperature was 102, pulse 110, and respirations 30. Physical findings showed a dullness over the right lower lobe with many

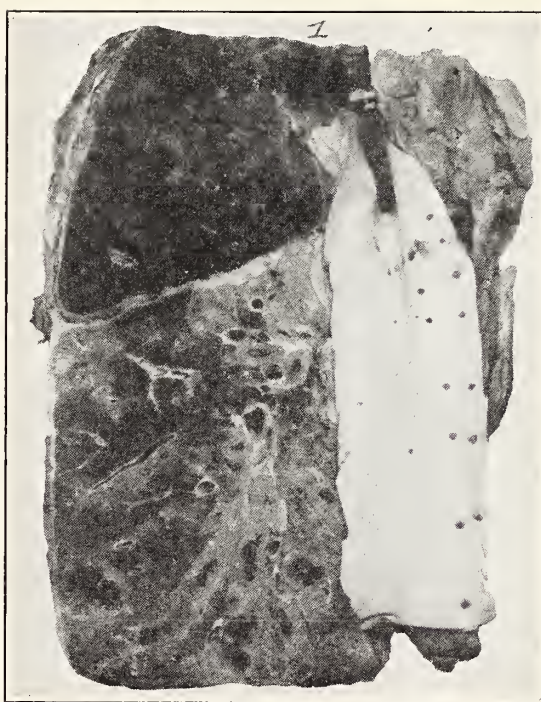


Fig. 1—Fuso-spirochetal Pneumonia. Pneumonic type.

coarse bubbling rales. Smears from the sputum, teeth and tonsils showed the Vincent's organism and cocci. The Wassermann was positive in spite of a negative venereal history. Death occurred in five days. The autopsy showed the findings so well described by Kline⁵. The whole lower lobe was solidified. The cut surface was of a greenish yellow color and showed in different places small irregular gangrenous areas with cavities the size of a marble. Scattered near the hilus were the butter-yellow areas said to be characteristic of this infection.

The Bronchiectatic Type: Case No. 6620 was diagnosed on admission as a lung ab-

secess because of the marked localized flatness in the lower right lung surrounded by a dull area. There were moist rales after cough, diminished breath sounds with tubular breathing and increased whispered voice. The infection had existed for about five months and caused the patient to raise an ounce of musty smelling sputum a day. The Wassermann was negative. Vincent's organisms were found in the sputum and about the teeth. Infection of the lung from the teeth could not be accounted for until we discovered that the patient had nocturnal epilepsy of a severe grade. An operation

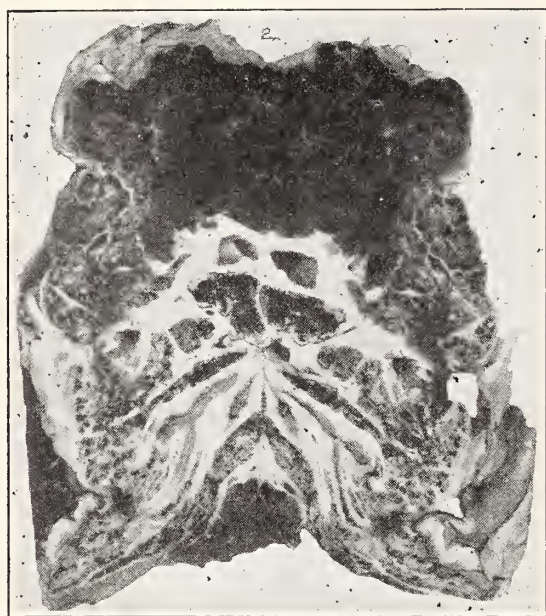


Fig. 2—Fuso-spirochetal Pneumonia. Bronchiectatic type.

for drainage was performed. This seemed to light up the process, for the stench in the room and hall was nauseating. On the suggestion of Dr. L. H. McKennie, light therapy in the form of water-cooled quartz lamp was used. In two days the smell was entirely gone. The patient had bled some previous to operation. Nine days after the drainage he died from a profuse hemorrhage. The autopsy showed the lower bronchi to be made up of white dense fibrous tissue as much as an eighth of an inch thick, whereas the healthy bronchial walls were paper like. The adjacent lung tissue was mostly replaced by fibrous tissue, giving to the whole cut surface a white appearance and a gristle-like hardness to touch. The bronchial mucosa was thickened and

covered with yellow and reddish-yellow pus, in which beautiful cigar-shaped bacilli, spirals and cocci were found in myriads. These same organisms were found in pure smear from pus obtained immediately after the chest wall had been removed at the time of operation.

As a result of the work we have done on chronic non-tuberculous lung infections we find that the suspicion that he is dealing with one of the above lesions should come from the clinician to the clinical pathologist. Any chest findings which are unusual in chronic pulmonary tuberculosis should lead him to consult with his pathologist, so that together they can work out the infection. In the eight cases reported in this article not one was a chance laboratory diagnosis. Abnormal chest findings and a negative sputum give the first clew. The laboratory diagnosis of fuso-spirochetal pneumonias and diphtheroid infections are easy. Oidiodermatitis, sporotrichosis and streptothrix infections need careful culture work and biopsy. No field of medicine offers a better chance to do scientific work than this, for we know the causative organisms, a certain method of diagnosis and drugs that are said to be nearly specific in early cases.

I wish to thank Major E. H. Bruns of the Fitzsimons Hospital for the beautiful photographs of the fuso-spirochetal pneumonia lesions.

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A SERMON

Six days a week the Devil works—
Works overtime on Sunday,
And then he's ready once again
To start anew on Monday.

So if all evil you would shun
And keep your conscience level,
You must begin at early morn
And work just like the Devil.

—Life.

ARTIFICIAL PNEUMOTHORAX IN THE TREATMENT OF PULMONARY TUBERCULOSIS*

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Artificial pneumothorax is probably the greatest single therapeutic or mechanical procedure discovered in the treatment of pulmonary tuberculosis, and a review of the literature discloses views somewhat changed and modified compared with our knowledge at the inception of this treatment.

Immobilization by means of casts, splints and rest in the treatment of extrapulmonary tuberculosis, has been enforced for many years, resulting in the healing of these various tuberculous processes. So immobilization of the lungs, or an approach to it, would suggest itself in the treatment of pulmonary tuberculosis. This may be brought about by the use of posture or various mechanical devices, by breathing more superficially and less frequently, by artificial pneumothorax, by extra-pleural thoracoplasty, or by phrenicotomy.

The result to be attained is to rest or at least lessen the normal physiological action of the diseased lung, and thereby allow the tuberculous process to heal. Krause¹ has well said, "Rest of the diseased part promotes the healing of tuberculosis in any and every location; the only questions that can arise are those that concern the methods of attaining it".

Artificial pneumothorax was suggested by Hippocrates and again in England in 1822. But Forlani of Italy probably was the first to put it in use, in 1892. Murphy of Chicago used the same treatment without being aware of what Forlani had done. It remained, however, for Ludolf Brauer of Hamburg, Germany, to put it in general use. In 1912 papers were read on induced pneumothorax before the National Tuberculosis Association at Washington, D. C., by Drs. Hamman and Sloan² and by Dr. Mary Lapham³. It was after these papers that it came into general use throughout the various sanatoria and among the various phthisiotherapists in this country. At the present time

it is used in a much greater variety of cases and with much better results than it was at the time of its introduction.

Methods of its administration have changed somewhat, and the technique has become more perfected, so that the dangers of some of the previously dreaded complications have lessened.

I recall the extensive **subcutaneous emphysemas** encountered when I first started this method of treatment. Now it is seldom seen and, when seen, to a much less degree.

Pleural effusion is said to occur in as high as 100 per cent of cases, if treatment is continued over a sufficient length of time. This, I believe, is exaggerated, but pleural effusion is rather to be expected than feared and in itself is not of any serious moment, unless the effusion becomes an empyema. It is generally believed that pleural effusion is most frequently caused by separating or tearing of adherent pleura. A decrease in this complication can be brought about by administering a small pneumothorax or so-called expansile pneumothorax, by injecting smaller amounts more frequently, and by maintaining a negative pressure. Barlow and Thompson⁴, in their extensive monograph, state that pleural effusion is seldom seen by this method.

An empyema will often clear up by repeated aspirations and simple irrigations, provided a bronchial fistula is not present, and open drainage is not resorted to. However, in some it will persist in spite of all methods of treatments, including the various dyes and formalin and glycerine preparations.

Spontaneous pneumothorax occurs in a small percentage of cases, about 3 per cent, according to Matsons and Bisailon⁵, and is a serious complication. It will close up in some few cases, but many times is a terminal condition. Undoubtedly many empyemas are the result of small spontaneous ruptures. It is less serious if many pleural adhesions are present, allowing only a small pneumothorax space. Extra-pleural thora-

*Read before the El Paso County Sanatorium Association, May 20, 1925.

coplasty is indicated in some few of the persistent bronchial fistula cases, if the general condition of the patient will warrant such a procedure.

Pleural shock is avoided by careful and thorough anaesthesia extending into the parietal pleura.

Air embolism, probably the most dreaded, but fortunately a very infrequent accident, is preventable by obtaining a negative monometric reading with free oscillation before the injection of air. The Matsons and Bisailon^o report two fatalities in over twelve thousand injections from this accident. I have never encountered it.

Progression of disease in the contra-lateral lung is not an infrequent problem to deal with. In selecting cases it is the exception rather than the rule, to obtain strictly unilateral cases. The contralateral lung must be carefully watched by physical examinations and by x-ray. This unfortunate condition is best met by less frequent and smaller injections or in some a discontinuance of the treatment. Strict co-operation on the part of the patient is essential.

Active disease in the better lung is by no means a contra-indication. It does mean that pneumothorax must be induced more cautiously, that is, smaller amounts of air must be given with no attempt to collapse completely, but merely to separate the pleura, and to administer the air frequently enough to maintain the partial collapse. During this time the condition of the opposite lung must be carefully watched and more or less air injected accordingly. Often the disease in the contra-lateral lung will improve under this judicious treatment.

Hemoptysis may often be controlled by its use. And should it be used for this purpose successfully, and there be no contra-indication for its continuance, it should not be discontinued after the subsidence of the hemorrhage.

Every patient with an active pulmonary tuberculosis, who does not improve rapidly, and one in whom there is considerable doubt as to the ultimate outcome, should be considered as a possible suitable case for artificial pneumothorax. It is true that a great

many of these will not be suitable cases on account of extensive bi-lateral involvement, or various complications that in themselves would be contra-indications because of their seriousness and with no chance of benefit being obtained. According to one author there will be about 20 per cent of the suitable patients who will be unable to take the treatment on account of pleural adhesions.

Tuberculosis of the larynx, intestines, or kidneys, or of any other organ or tissue is not necessarily a contra-indication unless grave enough in character to make the prognosis decidedly unfavorable. Often a tuberculous larynx or tuberculous enteritis will improve following artificial pneumothorax, if the condition of the lungs is favorably influenced by its administration. However, the indiscriminate administration of pneumothorax, especially in the hopelessly ill, is only to be condemned, as it discredits an otherwise useful therapeutic procedure.

Pregnancy in the tuberculous has been carried through to a successful termination by the aid of artificial pneumothorax.

The curability of active pulmonary tuberculosis, with tubercle bacilli in the sputum, under the ordinary hygienic dietetic treatment is somewhat exaggerated. Some institutions report over 50 per cent of their cases dead at the end of five years. So the ultimate prognosis should at least be considered grave. All tuberculous patients should be allowed sufficient time to improve under ordinary methods, but there is a large number who will improve to a certain point and either remain stationary or retrogress, retain tubercle bacilli in their sputum and from an economic standpoint will not be self-supporting. Many of these will be restored to health by pneumothorax.

There is no use in waiting until the patient becomes far advanced before starting treatment. The further advanced a case may be the more likelihood there is of extensive pleural adhesions, thereby either making a pneumothorax impossible or only partially successful. The early case is more amenable to treatment, results will be more rapid, materially lessening the length of time the

treatments should be continued, and will restore a patient to a self-supporting basis sooner and much more certainly than could possibly be expected under the ordinary methods.

In making a plea for the earlier type of cases, I do not mean to discredit its use in the far advanced. Often it is their only hope. Cavitation, with large amounts of sputum, should always be compressed if there are no contra-indications, thereby lessening the danger of aspiration infection into the better lung. Cavities will be compressed and in many cases will heal. Fibrosis is not a contra-indication. Many far advanced cases are given pneumothorax to prolong life even though a permanent benefit cannot be expected. Treatments must be continued over a long period of time. Compression treatments with high positive monometric readings are essential to get the required result due to the tough adhesions and fibrosis in the far advanced.

There are a certain few who should be given the benefit of **bilateral pneumothorax**. A patient doing badly in whom the involvement in both lungs is about equally active and distributed, provided the bases are fairly clear should be studied with this in mind. The strictest co-operation from the patient is essential, and he must be of the right temperament, and be willing to remain absolutely quiet in bed for several weeks or months, as each individual case may demand. The method of procedure, as advised, is to inject the most active side first, if this can be determined. If equally involved, the left is selected first, as this side is usually of more recent origin and more likely to be activated. Small injections should be given frequently in the selected lung, maintaining only a partial collapse with strong negative monometric readings. After a month or six weeks the second side should be injected, two to three days having elapsed since the last injection of the first. Injections should be given frequently with small amounts and always maintaining a strong negative pressure as on the first side. Each side is then studied separately and injections given accordingly. Many

good results have been reported and I feel that its use should be encouraged more in carefully selected cases under the most careful supervision.

In conclusion:

1. The earlier type of case is being selected as suitable for pneumothorax treatment more frequently at present than a few years ago.

2. Complications are less frequent by administering small or expansile pneumothorax with no attempt to complete compression. There is less danger of activating a contra-lateral lung infection by this method. Pleural effusions, empyemas, and spontaneous pneumothorax occur less frequently, and re-expansion of the lung after discontinuance of treatment will be more nearly complete.

3. Many feel that once compression is started the lung will never be restored to usefulness. Gardner⁷ states, "The degree of permanent impairment of the lung by long-continued artificial pneumothorax is dependent upon the extent and degree of injury by the tuberculous process".

4. The very fact that artificial pneumothorax has been used successfully for the past fourteen years in this country and is being used more extensively and more successfully at present than ever is evidence sufficient to convince the most skeptical of its therapeutic value.

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A REVIEW OF SANOCRY SIN TREATMENT

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Scarcely a year passes but some investigator in the field of tuberculosis arouses the hope of the sufferer by announcing the discovery of a new method of cure.

The history of these discoveries and their fate up to the present is familiar to all.

During the past year Professor Molgaard, of Copenhagen, working altogether with animals, has published the results of his experiments, which have aroused more general interest than any others since the days of Friedmann.

Sodium auro-thiosulphate, to which Molgaard has given the name sanocrysin, was first described by Fordos and Gelis in 1845, but its effect upon the tuberculous organism has not been previously considered.

This gold salt as prepared and described by Molgaard is a solid snow-white substance which crystallizes in long needles, is easily soluble in water, is neutral in solution, diffuses rapidly through animal membranes, and is probably decomposable in the organism without forming gold ions or other poisonous products. His study was first directed towards: (1) the influence of sanocrysin upon the growth of bovine tubercle bacilli in culture; (2) its influence upon the morphology and staining properties of the bacilli; (3) its ability to prevent "tuberculous infected animals" from developing generalized tuberculosis.

He found that sanocrysin in concentrations of 1:100,000 completely prevents the growth of tubercle bacilli in cultures and in a concentration of 1:1,000,000 the growth of bacilli is retarded.

Tubercle bacilli subjected to sanocrysin in concentration of 1.3 percent to 0.6 percent lost their acidfastness, most of them becoming granulated and more or less gold black, only a few bacilli remaining acidfast.

These phenomena are interpreted as evidence of penetration of the fatty colloid system by the gold salt, and the blackening is thought to indicate the presence of the gold containing radical of sanocrysin in the body of the bacillus.

Furthermore five guinea pigs were inoculated subcutaneously with bovine bacilli; and immediately following the infection, one to two centigrammes of the gold salt injected into the infected focus and the dose repeated. Four of these animals killed fifteen to twenty-five days later showed no glandular or organic tuberculosis. Also, sanocrysin injected intravenously into healthy calves in doses of one to two centigrammes per kilogramme of body weight produced no injurious effect, though slight albuminuria sometimes followed, disappearing within four days. Gold was also found in the urine for a period of six days following an intravenous injection.

These experiments are quoted in detail in view of the results obtained by Sweany, McCluskey and Eichelberger working with sanocrysin along somewhat similar lines. These observers reported their results at the meeting of the National Tuberculosis Association in June, 1925.

Sweany found that sanocrysin does inhibit markedly the growth of human tubercle bacilli in agar cultures in 1:500,000 dilution and slightly in 1:1,000,000 dilution, which confirms its bacteriostatic effect. However, no bacteriocidal effect was produced in concentrations as low as 1:2,000 of sanocrysin for periods of two hours when five billion bacilli were used, good growths of bacilli being obtained on Petroff's media. In a concentration of 1:500,000 approximately 100,000 tubercle bacilli suspended in fresh human serum for forty-eight hours did produce tuberculosis in guinea pigs only slightly more chronic and with less involvement than control animals. Which again is evidence against its power actually to kill the bacillus.

He also found that apparently a reducing substance does exist in living tubercle bacilli and in some other gram-positive organisms, that is capable of reducing metallic gold from sanocrysin, and that the gold is first deposited in the bacilli having granules. It is generally conceded that these beaded

forms are indicative of a lessened vitality on the part of the bacillus and present in less active disease.

In the light of this report, one must at once doubt, as Sweany suggests, the efficacy of the drug in the treatment of progressive forms of tuberculosis, which idea is in direct contrast to the teachings of Molgaard and his co-workers.

At the same time McCluskey and Eichelberger reported the effect of intravenous injections of sanocrysin in normal and tuberculous dogs with respect to urinary changes, excretion, and distribution of gold.

In normal dogs they found the gold salt to be excreted principally by the kidneys over a period of thirty days, and it is possible to detect gold in the urine thirty minutes after an intravenous injection. Molgaard found it absent after the sixth day.

In the urine of all the dogs studied, albumin was present in varying amounts, persisted from four to ten days, and sometimes reappeared. They also found that diarrhea, oliguria, and vomiting were produced, that urinary urea, chlorides and creatinine were decreased, and that gold from sanocrysin localized in the organs did not exceed 32 per cent of the amount injected.

From these results one certainly hesitates to draw the conclusion that no ill effect is produced on normal dogs by intravenous injections of sanocrysin.

The principle upon which the Danish investigator bases his treatment of tuberculous calves is as follows:

The gold salt, when injected intravenously into tuberculous animals, rapidly kills the tubercle bacilli in large numbers. The water soluble endotoxin, a product of the killed bacillus, is immediately liberated in the blood stream, producing albuminuria, toxic myocarditis, edema of the lung, fall in body temperature, and in many instances death. This he calls "tuberculin shock," a type of reaction which sanocrysin does not produce in healthy subjects. In order to combat this, he injects an anti-tuberculin serum which presumably neutralizes the endotoxin thus liberated. This antitoxic serum is produced by repeatedly inoculating

calves or horses with killed tubercle bacilli and tuberculin until a negative complement fixation test is obtained.

The reaction to the gold salt in animals made immune to shock is apparently quite different. The injection is followed by an early rise in temperature, gastro-intestinal disturbances manifested by diarrhea exanthematous skin eruptions, loss of appetite, a definite loss in body weight, and occasional albuminuria.

Upon subsidence of these symptoms a second sanocrysin injection is given, followed by a less marked reaction, and so on until five or six doses are given, which usually concludes the treatment.

A large series of artificially infected calves thus treated is reported at autopsy as showing no evidence of tuberculosis, whereas the control invariably developed organic disease. Two months following infection with doses as high as twenty milligrams a large number of his controls were still living, which suggests that he used a very avirulent strain of bovine bacillus.

Sweany draws attention to the fact that the theory of "tuberculin shock" must be abandoned, since sanocrysin does not kill tubercle bacilli after exposure of forty-eight hours in concentration of 1:500,000 or more. If, therefore, sanocrysin is not actually bacteriocidal in its effect, there seems no reason for assuming that "tuberculin shock" differs from the reaction that might be produced in tuberculous animals by the intravenous injection of any metallic salt.

No mention is made of the studies on gold therapy in tuberculosis by Lydia Dewitt, who has never found experimental tuberculosis affected more favorably by gold than by any other metallic salt.

The effect of sanocrysin treatment on tuberculous patients has in the main been carried out by Knud Secher, chief clinician of the Bispebjerg Hospital, Copenhagen. Judging from the lectures recently given by him in this country, from his monograph and case reports, one is immediately impressed by his willingness to present the unfavorable as well as the favorable results. In all he has treated approximately 200 cases of pul-

monary and extrapulmonary tuberculosis. However, in reviewing the results of the cases treated and reported in some detail, one gets the impression that many patients have undoubtedly succumbed as a result of sanocrysin treatment.

In the opinion of Dr. Secher, the types of patients best suited for treatment are those with incipient pulmonary lesions and tuberculous pleurisy. Assuming that such patients do show marked improvement, one hesitates to subject individuals to the discomfort and dangers of such reactions, especially since this type of patient will usually recover under a proper rest regime.

As in animals, the reactions following sanocrysin intravenously consist of albuminuria, a sharp rise in temperature, vomiting of a persistent nature, exanthematous skin eruptions, and invariable loss of weight from two to five pounds a week in some cases and occasionally diarrhea. Secher feels that in the majority of instances these reactions may be successfully combated by the use of the serum, and in a recent communication he states he is now obtaining much better results than when first using this serum. Cachexia, however, is not in the least affected by serum administration, which renders it impossible to treat many patients with advanced lesions. Though not stated in his monograph, Dr. Secher is firm in his opinion that as to the question of controls, conclusions can be drawn only by using sanocrysin in cases which for a reasonable length of time have not responded to a strict hygienic rest regime, but do show definite loss of active symptoms following the gold treatment. In short, correct deductions cannot be made by giving the treatment in a certain number of cases and using the same number of similar untreated patients as controls.

To the critical reader this view seems rather untenable. One is also at a loss to find any statistical data regarding the disappearance of symptoms, physical signs and ultimate recovery or death. Cases have been observed by Wurtzen, also of Copenhagen, in which, even after a thorough and success-

ful treatment, sensitiveness to sanocrysin again appeared.

The Danish clinicians apparently agree that sanocrysin intravenously exerts no beneficial effect upon surgical tuberculous lesions or upon tuberculous meningitis, but improvement is seen if the drug is applied locally to open lesions. Children apparently tolerate the treatment better than adults, and Professor Bie of the Blegdam Hospital reports good results in juvenile cases which, however, were not advanced.

In conclusion, there seems scarcely any reason for assuming that sanocrysin can have any effect upon tuberculosis different from the other gold salts which have been investigated over longer periods of time. If by chance the combination of the serum and sanocrysin does prove to be safe and beneficial, a great advance in the chemotherapy of tuberculosis has been made. In the meantime it is only fair to follow this work with unbiased opinions, allowing ample time to elapse before unjust condemnation is pronounced. No doubt information will be available in the near future which will cast more light upon the question whether sanocrysin is destined to play a vital part in the treatment of tuberculosis.

ZINC STEARATE DUSTING POWDERS FOR INFANTS

The second report of the Committee on Accidents from Zinc Stearate Dusting Powders appointed by the Board of Trustees of the American Medical Association has recently been published. Copies of this report, with an appendix showing the opinions of thirty-four representative pediatricians on the therapeutic value of such powders, can be obtained on request. Address, Committee on Zinc Stearate Dusting Powders, American Medical Association, 535 North Dearborn Street, Chicago, Illinois, enclosing a self-addressed, stamped envelope.

There were reported to the committee 131 accidents from the inspiration of zinc stearate dusting powders by infants. Twenty-eight of the victims died. The committee conferred with representatives of certain distributors concerning the dangers incident to the use of such powders on infants. Following a meeting held at the headquarters of the American Medical Association, these distributors agreed to cooperate by adopting self-closing containers for the powders they distribute and agreed that cautionary labels are desirable. Opinions were secured from thirty-four representative pediatricians concerning the therapeutic value of zinc stearate dusting powders. Thirty-one believe that such powders have no advantage over other dusting powders, that they constitute a hazard to infant life, and that their uses should be discouraged.

GANGRENE DUE TO CALCIUM CHLORIDE

WILLIAM A. CAMPBELL, JR., M.D.
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Cushney¹ makes the following statement in regard to the pharmacological action of calcium. "Calcium differs from the alkalies in forming comparatively few soluble salts and these few salts penetrate into the various tissues of the body with greater difficulty than the salts of the alkalies. They precipitate colloids, such as the proteins, in much more dilute solutions than the salts of the alkalies, and the precipitate is not redissolved by dilution with water. This precipitation of proteins appears to account for the pain and irritation which follow the subcutaneous injection of the more readily dissociable salts such as the chloride."

I wish to report a case showing gangrene following injection of calcium chloride.

Mrs. P., aged 50. Family history and past history unessential.

Present illness: Patient has suffered for months with recurring attacks of tonsilitis and sore throat. Persistent cough between acute attacks. Below par physically and psychically. Physical examination: general examination essentially normal. Throat shows chronic reddening of pharynx, tonsils, and pillars. Tonsils enlarged, boggy and ragged. Tonsillectomy advised by Dr. D. A. Vanderhoof. May 12, 1925, patient received an injection of 10 per cent calcium chloride in right median basilic vein as a routine pre-operative preparation. Patient moved slightly after about 5 cc. had been injected. On aspiration, blood appeared in the syringe. Injection continued, but after about 2 cc. was injected, patient began to complain of a slight burning sensation and a feeling of fullness about the needle. Aspiration caused blood to appear in the syringe and no fullness could be seen or palpated about the needle. Injection begun again, but patient complained of pain at once, so needle was withdrawn. No tumefaction about site of injection. There was some oozing of blood easily controlled by pressure. Patient stated that she felt warm during the injection and there was slight acceleration of pulse rate.

On May 13, 1925, eighteen hours after injection, there was some subcutaneous ecchymosis, slight redness of skin and slight induration about 2 cm. in diameter about the site of injection. Patient said that she had not slept well owing to the pain and that movement of the arm was painful. Hot applications recommended.

May 14, 1925. Induration and redness about the same. Treatment continued. Calcium chloride, 10 cc. of a 10 per cent solution injected into left median basilic vein. No difficulty.

May 15, 1925. Operation, tonsillectomy, Dr. D. A. Vanderhoof.

May 18, 1925. Induration and soreness has continued. Skin has turned black and there is beginning slough of tissue at site of injection. Antiphlogistine applications used.

May 23, 1925. Slough has continued until there is now a definite ulcer 2.5 cm. long by 2 cm. wide and 5 mm. deep. There is a zone of induration 1 cm. wide around this ulcer. The edges of the ulcer are clean cut and the base is covered with grayish yellow necrotic tissue. The median basilic vein is exposed, thrombosed, and gangrenous. Ulcer distinctly punched out in appearance.

May 31, 1925. Ulcer has been healing very gradually. Treatment has consisted in mechanical removal of necrotic tissue and a stimulating dressing. Induration about the edge not so marked.

June 7, 1925. Healing continues slowly.

June 20, 1925. Ulcer completely healed.

Experimental Work

Following the regrettable reaction shown by this case, it was decided to investigate the reactions produced by subcutaneous injections of solutions of calcium chloride of varying strengths. Normal healthy adult guinea pigs were used. The calcium chloride was injected subcutaneously under aseptic conditions into the hind quarters of the guinea pig. The results are tabulated below.

Animal.	CaCl ₂ .	Amount.	Site.	Result.
No. 1	5.0%	0.5 cc.	R.R.Q.	Slough. Induration about ulcer.
No. 1	5.0%	0.25 cc.	L.R.Q.	Slough. Induration about ulcer.
No. 2	2.5%	0.5 cc.	R.R.Q.	Slough. Induration about ulcer.
No. 2	2.5%	0.25 cc.	L.R.Q.	Induration, redness. Very small slough.
No. 3	1.0%	1.0 cc.	R.R.Q.	Redness. No induration. No slough.
No. 3	1.0%	0.5 cc.	L.R.Q.	No reaction.
No. 4	Sterile Normal	1.0 cc.	R.R.Q.	No reaction.
No. 4	NaCl.	0.5 cc.	L.R.Q.	No reaction.
No. 5	Powdered CaCl ₂	Scarification	R.R.Q.	Slough. Induration about ulcer.
No. 5	Nothing	Scarification	L.R.Q.	Normal healing.

As may be seen from the above work, even a small amount of the 5 percent solution of calcium chloride is sufficient to cause gangrene. The 1 percent solution is innocuous in the experimental work cited here. The ulcerated area in each instance showed the same appearance as noted in the case report, namely, the edges were clean cut, the base covered with grayish yellow necrotic material, a real "punched out" ulcer resembling the syphilitic ulcer. Around the ulcerated area there was a distinct zone of induration, and the skin showed some reddening.

One animal, No. 5, was used to note the effect of powdered calcium chloride on a scarified surface. The right rear quarter was scarified aseptically and the calcium chloride rubbed in. The left rear quarter was scarified and allowed to heal naturally. This animal showed distinct induration and later gangrene of the right rear quarter with the same characteristic ulceration as seen in animal No. 1. This animal also served as an additional control, showing that the calcium chloride and not the amount of fluid injected was producing the gangrene.

Discussion

Within the last few years many workers have recommended the use of calcium in several different conditions. Calcium lactate has been the favorite for oral administration, but owing to its poor absorption by the gastro-intestinal tract, results have not been satisfactory. As the chloride is the most soluble of the calcium salts, it has been selected as the one for use in intravenous therapy.

Calcium has been recommended for and used in rickets and osteomalacia, but the

results have not been satisfactory. MacCallum² recommends its use in tetany, due to parathyropriva and reports good results from its use. More recently, it has been used as a diuretic, as an aid in the removal of large transudates and exudates.

Even since the discovery of the role calcium plays in the coagulation of the blood, different writers have recommended its use in cases with prolonged bleeding time, hemophiliacs, and later with any hemorrhagic condition. Laryngologists have lately made use of injections of calcium chloride to minimize the dangers of hemorrhage during and after tonsillectomies. Careful studies³ have revealed that the oral administration of calcium does not hasten the clotting of blood. In 1915, Lee and Vincent⁴ showed that calcium chloride administered intravenously would shorten the coagulation time of patients with obstructive jaundice. They stated that "apparently calcium can be given in this manner (intravenous injection) without bad results, but its effect on the coagulation of the blood is transitory."

Walters⁵ later reported on the use of calcium in the pre-operative preparation of patients with obstructive jaundice. He used 5 cc. of a 10 percent solution of calcium chloride per 60 kg. body weight, daily for three successive days. He reported excellent results clinically. Experimentally he was unable to show any deleterious effect from the administration of the drug in the dosage given above. It caused no renal injuries. On the heart, in therapeutic doses, it caused only a slight acceleration in the rate; but with much larger toxic doses, it caused various disturbances in conduction,

ultimately producing ventricular fibrillation and death, if pushed to an extreme.

Pottenger⁶, in working on bronchial asthma, concluded that excessive vagus hyper-irritability caused the spasms. He tried to offset this by stimulation of the sympathetic system, which he considered equivalent to relatively increasing the calcium ions by intravenous administration of calcium chloride. Three cases of bronchial asthma showed improvement after treatment, and Pottenger recommended the use of this treatment in cases of bronchial asthma, hay fever, urticaria, and serum disease. Seelig⁷ reported a case of gangrene following calcium chloride administration and advised the use of a 1 per cent solution to avoid this danger.

The main objection to using a 1 per cent solution of calcium chloride for intravenous injection, is the greater bulk of solution which must be injected. Walters dosage, 5 cc. of a 10 per cent solution, would be represented by 50 cc. of a 1 per cent solution. This amount practically requires the use of a gravity outfit to give the treatment.

Conclusions

1. Solutions of calcium chloride are not innocuous in the 5 percent and 10 percent strengths in which they are supplied commercially.

2. Any solution of calcium chloride above 1 percent may produce induration and gangrene when introduced subcutaneously, and this subcutaneous introduction may easily occur through technical difficulties during intravenous administration of the drug.

3. A solution of calcium chloride of 1 percent strength has been shown to produce no deleterious effects when injected subcutaneously in experimental animals.

4. In so-called therapeutic doses, calcium chloride has no toxic effect, the only reactions being a subjective sensation of warmth and a slight acceleration of the heart rate.

5. Either extreme care should be exercised in giving intravenous injections or commercial calcium chloride (5 percent and 10 percent strengths) to guard against sub-

cutaneous leakage or a 1 per cent solution (experimentally innocuous) should be used.

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AN APPRECIATION

Clinical thermometer,
Infallible barometer,
How should I know if sick or well,
Were you, my guide, not there to tell?

For though I may feel passing ill,
Let me behold you tarry still
At six good tenths plus ninety-eight—
My symptoms quickly dissipate.

While when, though feeling strong and fit,
Full ninety-nine I see you hit,
My error I'm not slow to own
With sigh and languor, plaint and groan.

And if, refusing cold to soar,
You drop instead to ninety-four,
My doubts dissolve, false hopes are sped—
I have proof positive I'm dead!

—Ruth Lambert Jones.

USE YOUR HEAD

A woodpecker pecks
Out a great many specks
Of sawdust
When building a hut.
He works like a nigger
To make the hole bigger—
He's sore if
His cutter won't cut.
He don't bother with plans
Of cheap artisans,
But there's one thing
Can rightly be said:
The whole excavation
Has this explanation—
He builds it
By

Using

His

Head.

—Anon.

ABDOMINAL SURGERY IN THE PHTHISICAL PATIENT*

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The subject of surgical operations on patients with pulmonary tuberculosis is indissolubly linked with the subject of the effects on pulmonary tuberculosis of anaesthetic agents. The two subjects demand simultaneous consideration. But inasmuch as there is no agreement among phthisiologists on the harmfulness or the harmlessness of the anaesthetic agents and inasmuch as no report of experimental work on the subject has been found, an attempt to deal with anaesthesia can be only an expression of opinion and may lead the discussion away from the main topic.

Some one says: "There is a patient who has the disease, as well as the disease which has the patient". He must have been a doctor of the old school whose devotion to his patient equaled his interest in the disease. Present day scientific physicians in general and specialists in particular, are justly criticised for overlooking the patient who has the disease and focussing their attention on the disease that has the patient. This error accounts for almost as many surgical disappointments as do operations performed under a faulty diagnosis. Mumford once wrote: "In the nature of our work we cannot with propriety act as pure material scientists only; as mere investigators, experimenters and operators". But desirable as it is in general not to forget the patient who has the disease, in no field of surgery is it so disastrous to focus all attention on the abdominal disease that has the patient.

Dr. Wetherill stressed the point that a patient who has or who has had pulmonary tuberculosis is a substandard risk. Dr. Edson stated the same thing more picturesquely when he said that a patient who has recovered from pulmonary tuberculosis has had the temper taken out of his springs. A tuberculous individual, whether his disease be active or quiescent, has less reserve power than the healthy man or woman and can not meet an emergency with normal reserve power.

Operations on the abdomen involve some shock, though it cannot be measured in any known units and is not usually serious; considerable pain is usual and this leads to loss of sleep and usually requires morphine for its relief; there is a period of several days fasting that results, in the simplest operations, in a loss of about ten pounds in weight. The tuberculous subject who coughs is bound to have greater pain than a patient who has no cough. Morphine inhibits cough, but does not to the same degree lessen the amount of sputum. If the sputum is not raised, there is a theoretical, if not a practical danger that by gravitation the disease process may be spread.

The fasting and consequent loss of weight is combined with a loss of strength, from which the healthy individual does not recover for a couple of months. The vitality (admittedly a vague term) of the tuberculous patient, may be so reduced that his cure is materially prolonged if not actually jeopardized. Please bear in mind that extension of the pulmonary disease often occurs at a period later than that during which the patient is under the observation of the surgeon.

The first point that I would emphasize, therefore, is that operative surgical therapy should not be advised on the tuberculous individual with the same alacrity as though the patient had not pulmonary tuberculosis and that when operation is necessary, a prolonged post-operative period of bed rest is most essential.

Pulmonary tuberculosis is a disease of all ages, but the majority of patients are included in early and middle adult life. That they have pulmonary tuberculosis does not lessen their liability to attack by acute abdominal disease common to their age period; but in addition it subjects them to possible abdominal complications of the infectious disease from which they are suffering.

In a short paper I can not consider in detail all abdominal conditions which are usually treated by surgical operation. I shall therefore generalize under three headings:

*Read before the El Paso County Medical Society, March 11, 1925.

(1) acute abdominal disease; (2) chronic non-tuberculous disease; (3) tuberculous disease.

Acute abdominal disease may require operation in the tuberculous as in the non-tuberculous subject and may or may not have a tuberculous basis. But in the making of a diagnosis of an acute abdominal condition, especially in the tuberculous patient, we must forever bear in mind that the same spinal nerves supply the abdominal wall as supply the pleura; that abdominal pain referred from the chest must be discounted; that muscular spasm cannot be interpreted as certainly protective of an underlying inflamed organ. Further, we cannot afford to forget that symptoms referable to the stomach and intestines are extremely common in pulmonary tuberculosis. When associated with pain and spasm of the muscles, such symptoms often simulate intra-abdominal inflammatory disease. Yet the symptoms disappear too suddenly and too completely to be explained on the basis of an acute intra-abdominal inflammation. From want of a clean understanding of their origin, we designate them reflex or functional. Such considerations not only warrant the surgeon in assuming an attitude of 'watchful waiting', but lay upon him the demand that radical operative therapy be postponed until he becomes convinced that his patient's natural powers of resistance will not successfully overcome the abdominal disease. The surgeon is often overwhelmed by the temptation to exhibit an acutely inflamed appendix with the comment that a delay of a few hours would certainly have meant perforation and possibly death. Such statements may be true, but there is an even chance that it is hyperbole. We don't know how badly the inflamed appendix that remains in its owner's belly may look when he declines our altruistic advice to part with it, and yet he gets over his attack and need not forever suffer from indigestion nor recurrent acute attacks. We must give the tuberculous subject this opportunity.

Chronic lesions within the abdomen of the tuberculous individual with one exception

should not be subjected to operation. A man with tuberculosis and a hernia would better chance strangulation and wear a truss than seek cure by operation. A woman with tuberculosis and bleeding fibroids would better seek relief from radiation with x-ray or radium than by primary operation. But there remains a fairly large class of patients whose pulmonary lesion is progressing favorably but who do not gain strength proportionately because they will not eat. They not only will not gain weight, but in spite of the favorable progress in the chest actually steadily lose weight. Such patients try the ingenuity of the phthisiologist to the utmost if they do not actually exhaust his supply of reasonable remedies. Physical examination often suggests the presence of peptic ulcer, gall stones or chronic appendicitis, and observation over a period not infrequently changes the suggestion into a diagnosis. These patients owe their undernutrition to their fear of the pain or distress that follows the taking of food. Without operation for removal of the causative lesion no continuous betterment can take place. These patients should be given the benefit of operation before they have become bad surgical risks. In this one class of patients there is real danger that operation will be postponed too long by the internist. And yet the end results after abdominal operation in these well chosen cases are maximally pleasing.

The surgeon is often consulted regarding the treatment of disease of the abdominal or pelvic viscera presumably of tuberculous nature. Precedent has been set for treating such conditions by operation. Especially does this apply to tuberculosis of the peritoneum and to tuberculosis of the female genital organs. However, as Major Myll of Fitzsimons General Hospital stressed in a recent article on genito-urinary tuberculosis, these intra-abdominal tuberculous lesions are "local manifestations of generalized tuberculosis, and treatment to be curative and permanent must be directed toward the disease rather than to a local manifestation of the disease".

I have been unable to find reports of

cases of tuberculous peritonitis and tuberculosis of the female genital organs conservatively treated, but the statistics on which present operative therapy is based date back to a period before the value of heliotherapy, phototherapy, (and possibly roentgen-therapy) was appreciated.

Gradually but surely, extra-pulmonary lesions are moving from the field of operative surgery; tuberculous glands of the neck are successfully treated by sunlight, x-ray and radium; tuberculous joints are not mutilated by operative measures as they were twenty years ago; conservative measures in tuberculosis of the male genital organs yield better results than radical operative procedures. In other words, with the value of physical agents usable in the treatment of generalized tuberculosis slowly gaining recognition and with a yet slower admission of the disappointing results of operative surgery in metastatic tuberculous lesions, fewer and fewer extra-pulmonary tuberculous lesions are subjected to operation.

It is my own conviction that pelvic and intra-abdominal tuberculous lesions are never primarily operative. The effect of rest and prolonged rest with employment of heliotherapy and phototherapy and such other physical agents as experience has proven or may prove valuable should be given an exhaustive trial before resorting to operative surgery.

There are a certain number of cases in which the second and third groups overlap, but they are not common. In such rare instances I believe that operation is not only justifiable, but demanded, although the prognosis is far less favorable than when the second classification alone applies.

The most feared, because most frequent, post-operative complication in the patients under consideration is an activation of a quiescent pulmonary process or an extension of an acute process. Generalization of the disease can rarely be attributed to an abdominal operation. A bronchitis, probably directly dependent on the use of general anaesthesia is common during the first three or four days, but it is my impression that the more serious post-operative acute re-

spiratory infections occur less frequently in the tuberculous than in the non-tuberculous patient. Cough ought to increase the likelihood of post-operative hernia, but I have no statistics to prove my point. Abdominal drainage is to be avoided because of the danger of persistent sinus. I can state, however, that in my own experience, abdominal sinuses in patients with pulmonary tuberculosis have healed as kindly as in the non-tuberculous where the area drained was not itself a tuberculous focus.

It has not fallen to my lot to operate on many patients who were carrying an induced pneumothorax. Theoretically such a patient should be a much poorer surgical risk than a patient who can use both his lungs. But in a few cases that have been operated upon by me the anaesthesia was as smoothly conducted and the post-operative convalescence was no more stormy than in tuberculous patients with no pneumothorax.

In conclusion, the tuberculous patient is a sub-standard risk and should be spared all surgical attack if possible. If abdominal operation is demanded, prolonged rest must be enjoined as the most important item of the post-operative treatment.

The frequency of referred symptoms and signs must be remembered in making a diagnosis of an acute abdominal condition, and such conditions should be treated conservatively until it becomes convincing that the patient's natural forces will not overcome his disease.

Chronic non-tuberculous abdominal lesions should not be operated upon unless they result in continued under-nutrition of a patient whose lung signs are progressing favorably.

Tuberculous abdominal and pelvic disease is not primarily operative, for it is a part of a generalized disease. Operation is not justified until the failure of rest and our physio-therapeutic adjuncts has been proven.

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ETHYLENE ANESTHESIA

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While I have used ethylene gas anesthesia a comparatively short time, I am convinced that it is without doubt a valuable addition to our armamentarium.

In the past two years I have given ethylene and oxygen gas alone, and with small amounts of ether, to 110 patients for major operations. Slightly more than 60 percent of these were tuberculous. While this anesthetic agent will hardly supplant ether, many operations may be done without the use of ether, or with so small an amount that the patients will escape the many disagreeable symptoms that so often follow ether anesthesia. Practically all of the patients given ethylene have vomited once or twice following the anesthetic. They recover consciousness almost immediately, and complain of little or no nausea after leaving the operating room.

The greater part of these anesthetics were for laparotomies—appendectomies and pelvic operations predominating; two Caesarean sections—one a contracted pelvis and one a complete placenta previa; three surgical pneumothoraces and one thyroidectomy. I have made no effort to tabulate the anesthetics for minor operations. One patient died during the anesthetic. This patient was operated in a desperate attempt to check an extremely toxic thyroid, and had been under treatment in the hospital for many weeks before the operation was attempted. One died following an appendectomy. This patient contracted influenza, complicated by an acute nephritis, death occurring about one week after the anesthetic. The third death occurred about ten days after a resection of the cecum for malignancy. I feel that none of these deaths should be charged to the anesthetic, with the possible exception of the toxic thyroid. This death was no doubt due to acute dilatation of the heart, and should be charged to the surgical procedure, as well as the anesthetic.

Prior to using ethylene I had given nitrous oxide and oxygen to more than 800 pa-

tients with active pulmonary tuberculosis, many of these requiring some ether in order to secure the necessary relaxation. I find that a much larger percent of patients can be carried through major operations with ethylene and oxygen alone than with nitrous oxide and oxygen; also, when ether is absolutely necessary to relax the patient, a much smaller amount is required with ethylene than with nitrous oxide. A small dose of morphine preceeding the ethylene is of considerable aid during induction.

I realize that such a small number of anesthetics will have but little value in a comparative study in the tuberculous. However, the earliest cases were patients with active pulmonary tuberculosis, and these anesthetics were given more than eighteen months ago. Apparently there has been no aggravation of the symptoms in these cases, and no lighting up of the lesion in those classified as quiescent.

One objection to ethylene gas is its inflammability, and it should not be given in operations where a cautery is to be used, and certainly not in the same room with a flame, such as an alcohol lamp or gas light. Electric motors should be so protected as to prevent arcing. I have always grounded the gas machine, mask and table to eliminate static sparks as far as possible. Some suitable means should be provided to ventilate the operating room if possible. Where windows cannot be used for this purpose, a small electric fan can be so placed that the air about the gas apparatus will be kept in motion.

SELL YOUR HAMMER AND BUY A HORN

Yes, sell your hammer, and sell it cheap;
If the thing won't sell, then bury it deep;
For, tho' living's high and times are tough,
The market has more than hammers enough.
Get a good horn and key it to G,
Then blow, "all right," with a yes-sir-ree;
If the clouds hang low, give a vigorous toot,
When the same goes slow is the time to "root."
Should a grouch come along with a song forlorn,
Just drown him out with your jubilant horn.
That's the way to be happy in this old world;
No battle is won 'round a flag that is furled.

Alexander Blackburn.

SYSTOLE

He who does not think well of the work he is doing, is made impotent by that very fact.—Sand.

A man has but the one puny life, the one tiny spark of faith. Better be venturesome with both for God's sake, than over-cautious, over-thrifty.—Robt. Elsmere.

Such as is the mouth such is the slap.—Proverb of Hindustan.

Good health is equal to a thousand blessings.—Proverb of Hindustan.

Even to an ant, death is sufficient suffering.—Proverb of Hindustan.

From opening the mouth, seventy ills may ensue.—Proverb of Hindustan.

Men carry their superiority inside, animals outside.—Russian Proverb.

Man is caught by his tongue, and an ox by its horns.—Russian Proverb.

The greatest king must at last be put to bed with a shovel.—Russian Proverb.

The fall of a leaf is a whisper to the living.—Russian Proverb.

When the ass bears a light load, he wants to lie down.—Russian Proverb.

The burden is light on the shoulder of another.—Russian Proverb.

It is better to turn back than lose one's way.—Russian Proverb.

A wise companion is half the journey.—Russian Proverb.

A man's worst difficulties begin when he is able to do as he likes.—Thomas Huxley.

DIASTOLE

The following answers to Binet questions were recorded in tests of juvenile delinquents (continued from July and August issues):

Question: What is the difference between pleasure and honor?

Answer: Pleasure is when you are happy; honor is when you are sad and mean.

I looked it up in the dictionary a few months ago, but I forgot it.

Question: What is the difference between a king and a president?

Answer: The president votes to be president; the king fights for it.

If they want to close up a bureau or a saloon, the people vote where there's a president; but the king goes ahead and closes it up.

A king he sets by a table, and the president, he sees that the town is all right and everything.

The king, he asked another man for it, and they told him he could be king if he knowed how.

The president is a governor. He's the governor which owns the mint.

The king has got authority to take money away from people and have their heads cut off.

The king don't do any work; he just tells the people what to do.

I think a king is more stricter than a government.

The king is elected by his ancestors. The president is elected by attorney.

Question: What is the difference between poverty and misery?

Answer: Poverty—it's to own a house, to own some property.

Poverty I don't know. Misery means something fierce.

Question: What is the difference between pride and pretension?

Answer: Pretension—if somebody was calling you and you would not look around.

Pride is where you're angry all the time.

Pretension means to pretend you are somebody; for instance, coming out of the Brown Palace with a toothpick in your mouth.

AN ATLANTIC MEDICAL MEETING

When Dr. S. D. Van Meter was crossing to Europe last June on the S. S. Montrose, a medical meeting was called by the ship's surgeon, who found a large number of doctors on the passenger list. The minutes of the meeting were written in humorous vein by Professor Pirie of McGill University, as follows:

Council called to order by Dr. Hazard. It was announced that the next meeting would be held when all were at sea on Thursday, 18th June. A paper on "Gall Bladder and How to Find It", by Dr. Lusk; another by Dr. Dickens on "How to Make Sam Weller"; another by Dr. Fox on "The Great Plague of London"; another by Dr. Mackey on "Brooklyn Bridge as a Cause of Flat Foot"; another by Dr. Marquis on "Why New York Surgeons Are the Best, and If Not, Why Not"; another by Dr. Van Meter on "The Climate of Colorado and How to Avoid It"; another by Dr. Walker on "Why People Turn Sick in Massachusetts", were all promised for the next meeting.

The chairman objected to so many papers for one meeting, and reserved the right to remove the gall bladder from any member who refused to let his paper go by title. He said it was his meeting, and he would call on whom he liked to talk on a subject of interest, such as "Moonlight Walks for Seasick Lovers", or some topic on eating, smoking, drinking, and their bad effects on bridge. He did not state which bridge was meant, but the meeting understood.

The meeting closed with a vote of thanks to the chairman, knowing that they would never see him again.

One of the amusing incidents of the meeting was the fact that more than half of the doctors invited from the passenger list turned out to be D.D.'s instead of M.D.'s.

POST GRADUATE WORK IN VIENNA

Dr. James H. Leyda writes his impressions of post-graduate work in Vienna:

Dear Doctor Levy:

My journey across was rather uneventful. Dr. Mackenzie held his class in the morning from 10 to 11:30 o'clock and in the afternoon from 3 to 4:30. He started off with a review of the anatomy of the temporal bone, giving clinical facts from time to time. A great deal of talking and quizzing was done about the labyrinth, but it was mostly anatomical. His interpretations of the tuning fork tests vary quite a little from our method. He is getting much longer period for bone and air conduction than we do. A C(256) fork should be heard by the normal ear about 110 seconds through the air, and about 70 seconds through the bone. This change has confused me somewhat, and I haven't straightened it out as yet. Many other little points were brought out that will be useful. Dr. Mackenzie is very enthusiastic and works hard to get his ideas over.

After ten days on the water we landed in Rotterdam, spending one night and day in Holland. Our visit to The Hague was interesting, but not altogether delightful on account of the heavy rain.

The second day after our arrival in Vienna we began to attend the clinics. Our schedule keeps us going from 7:15 a. m. to 10 p. m. It is altogether too much for one to get all that is talked about, but I suppose we will retain the usual percentage.

The operative courses usually run about eight

hours and are given to very small groups. When one is taking an operative course, the lecture going on at that time is missed. This arrangement makes it impossible to have any idle time. At the present time I am getting a wonderful course under Haslinger. He allows you to pass the bronchoscope and esophagoscope two or three times at each class. I was permitted to examine two different carcinomas of the esophagus in one hour. Haslinger is a regular fellow and has the natural ability to teach.

Am just starting on another operative course on plastic surgery of the nose and face under Frühwald. Haven't seen enough of his work to form an opinion, but from what I hear he is considered very good. We are also getting clinical lectures from Hajek, Neuman, Alexander, Freml and others. I am well pleased with practically all the courses and expect to get a great deal from them. We will have lots to talk about after my return.

Cordially yours,

JAMES H. LEYDA.

NEWS NOTES

Dr. William H. Crisp writes that approximately sixty Americans attended the convention of English Speaking Ophthalmological Societies in London. There were four registrants from Denver—Drs. W. C. Bane, W. C. Finnoff, E. E. McKeown and W. H. Crisp. After the convention Dr. Crisp visited clinics in France, Germany and Italy.

The Inter-State Post Graduate Assembly will be held at St. Paul, Minnesota, October 12-16 inclusive. The managing director of the assembly is Dr. William B. Peck, Freeport, Illinois.

Dr. and Mrs. Donald E. Maynard of Durango, are the parents of a son born July 13.

SUGGESTIONS TO AUTHORS

In submitting manuscripts to Colorado Medicine, authors are requested to comply with the following suggestions:

1. Typewrite your manuscript in double or triple space—never single space. Leave ample margin to right and left.
2. Write on whole sheets of paper—not half sheets.
3. Write your name on every sheet.
4. Furnish your top copy—not a carbon, which will smear with handling.
5. Avoid abbreviations, such as sod, bicarb., the Dr., P. S. P. test, R. Kidney, L. K., Sec'y., Assn., %, etc.
6. Follow standard form in bibliographies and references, observing the following details:

Give the author's initials or Christian name as well as his surname. Follow with a colon (:) and then with the name of the book or article.

In the case of a book, give the edition, unless the edition referred to is the first. Give the page referred to. Follow with the place and year of publication, and the name of the publisher.

In the case of an article, follow the title with the name of the journal. If abbreviations are employed, use those approved by the American Medical Association. (See "Suggestions to Medical Authors and A. M. A. Style Book" supplied by the American Medical Association, 535 North Dearborn street, Chicago, at a cost of twenty-five cents, or lent without charge by Colorado Medicine). Follow the name of the journal with the year of publication, and then with the volume and page number.

THE COLORADO STATE MEDICAL SOCIETY

(Incorporated November 1, 1888.)

The next annual session will be held in Colorado Springs, Sept. 29-30, Oct. 1, 1925.

OFFICERS, 1924-1925

President, Henry Sewall, Denver.

President-elect, G. A. Boyd, Colorado Springs.

Vice-Presidents, 1st, Ben Beshoar, Trinidad; 2nd, E. L. Morrow, Oak Creek; 3rd, J. H. Andrew, Longmont; 4th, William Whittaker, Burlington.

Secretary, F. B. Stephenson, Denver.

Treasurer, W. A. Sedwick, Denver.

Delegates to the American Medical Association:

Senior, L. H. McKinnie, Colorado Springs, term expires 1925.

Alternate, G. H. Curfman, Salida, term expires, 1925.

Junior, C. N. Meader, Denver, term expires, 1926.

Alternate, B. B. Blotz, Rocky Ford, term expires 1926.

Councilors:

Term expires

District 1. C. F. Andrew, Longmont.....1925

District 2. G. P. Lingenfelter, Denver....1929

District 3. John R. Espey, Trinidad.....1928

District 4. W. W. Crook, Glenwood Springs.1926

District 5. A. J. Nossaman, Pagosa Springs.1927

Constituent Societies, Times of Meeting, Secretaries

Arapahoe County—Last Monday of each month; secretary, H. H. Alldredge, Englewood.

Boulder County—Second Thursday; secretary, Margaret Johnson, Boulder.

Chaffee County—First Tuesday of each month; secretary, F. A. Jackson, Salida.

Delta County—Last Friday of each month; secretary, H. A. Smith, Delta.

Denver County—First and third Tuesday of each month; secretary, L. V. Sams, Denver.

El Paso County—Second Wednesday of each month; Secy., J. B. Crouch, Colorado Springs.

Fremont County—Fourth Monday of each month; secretary, Edgar C. Webb, Canon City.

Garfield County—Last Thursday of each month; secretary, L. R. Carson, Glenwood Springs.

Huerfano County—Third Thursday of each month; secretary, L. W. Lee, La Veta, Colo.

Kit Carson County—Quarterly, first Monday of December, March, June and September; secretary, Wm. L. McBride, Seibert, Colo.

Lake County—First Thursday of each month; secretary, J. C. Strong, Leadville.

Larimer County—First Wednesday of each month; secretary, V. E. Cram, Fort Collins.

Las Animas County—First Friday of each month; secretary, P. W. Carmichael, Sopris.

Mesa County—First Tuesday of each month; secretary, E. H. Peterson, Grand Junction.

Montrose County—First Thursday of each month; secretary, C. G. Brethouwer, Montrose.

Morgan County—Time of meeting (not reported) secretary, N. D. Wells, Fort Morgan

Northeast Colorado—Second Thursday in each month; secretary, E. P. Hummel, Sterling.

Northwestern Colorado—Second Thursday of each month; secretary, E. L. Morrow, Oak Creek.

Otero County—Second Thursday of each month; secretary, B. F. Blotz, Rocky Ford.

Prowers County—First Tuesday of each quarter; secretary, L. R. Mitchell, Eads.

Pueblo County—First and third Tuesday of each month; secretary, D. E. Hoag, Pueblo.

San Juan Medical—Second Saturday, January, April, July and October; secretary, H. A. Lingenfelter, Durango.

San Luis Valley—Time of meeting (not reported); secretary, P. K. Dwyer, Alamosa.

Weld County—Third Monday of each month; secretary, C. A. Ringle, Greeley.

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Investment Committee: W. A. Sedwick, chairman, Denver; W. A. Jayne, Denver; S. B. Childs, Denver.

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Colorado Springs: L. W. Bortree.

Pueblo: J. W. Thompson.

Sterling: To be appointed.

Grand Junction: H. R. Bull.

Greeley: C. B. Dyde.

Committee to Assist in Goitre Survey, American Association for the Study of Goitre: Virginia Van Meter, Denver; H. E. Abrahams, Trinidad.

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EDITORIAL NOTES AND COMMENT

The Six Months Law

Maryland's so-called "Six Months Law" attracted wide attention when it was passed in 1916. The law forbids separation of mother and babe for the first six months of the infant's life. Before the passage of the law, one illegitimate child in four died during the first six months. The rate has now been reduced to one in twelve, which is one-and-a-half times higher than the death rate in legitimate children.

Poisoned Babies

In 1924 the Metropolitan Life Insurance Company encountered seventy deaths in children due to accidental poisoning. Among these deaths twenty-four were due to strychnine. This was four times the number occurring from lye. One of the most frequent sources of strychnine poisoning was cathartic pills, which the little ones mistook for candy.

The Superior Child

Dr. Louis M. Terman of Stanford University has with the aid of his assistants conducted mental tests of a quarter of a million school children. The one per cent given the highest ratings have been studied in greater detail. They are found to be larger, healthier, and of more stable nervous system than the group at large. Furthermore, their ancestry is somewhat longer lived than that of the average child.

The Orphan

The National Committee for Mental Hy-

gient points out that while the physical equipment of orphanages has improved, the mental environment of the asylum remains practically unchanged. The child needs affection and attachments. It should feel that it "belongs."

Herein lies the shortcoming of the orphan home.

But, further, says the Committee, the institution is not economical. In New York City the child is maintained in a foster home for fifteen dollars a month; in an orphanage the cost exceeds twenty-eight dollars. Eventually the orphanage may shelter only the subnormal and undesirable child that is not acceptable for adoption.

Cataloging Quacks

At the annual meeting of the American Federation of Organizations for the Hard of Hearing the members were advised by the Secretary of the New York State Board of Medical Examiners to investigate physicians to whom they applied for treatment.

They were also urged to keep an accurate record of the medical quacks who live by exploiting the deaf.

Hard Water

Experiments with animals at the University of Chicago and at the University of Nebraska seem to show that hard water is not detrimental to health. White rats and white mice thrived equally well on hard water or distilled water. Larger animals, such as rabbits, dogs, and calves, thrived better on hard water than on soft. Hard

water was found to be detrimental only when through the addition of salts it was made ten times harder than water found in nature.

Safety Signals

For the benefit of the color-blind automobilist the Swedish State Railways have decided to abolish green lights in favor of bluish-white. Red is to be of a special shade, which makes the distinction sharper. Sweden finds that about 5 per cent of her males are color-blind, the proportion being the same as in other countries.

Sex Psychology

The psycho-sexuality of a group of college graduates has been investigated by the National Research Council through the medium of the anonymous questionnaire. According to the tabulations, the male *Homo sapiens* is a singularly unimaginative creature. He prefers the medium woman to one that is tall or short. His preference is for brunettes, and he has little taste for blondes. The thrill from kissing and caressing is "a quickly passing enjoyment." Three men out of four aver that they prefer the society of men to that of women.

A New Conception

Some years ago Dr. Jacques Loeb produced embryos of fishes and frogs by chemical and mechanical treatment of unfertilized eggs. Continuing similar lines of investigation, zoologists of the University of Chicago have developed unfertilized eggs of sea urchins by exposing them to the ultra-violet ray.

The Prophylactic X-ray

Flaws in steel are now discovered by x-ray. Recently in the installation of a high pressure steam system in Boston, x-ray examination showed that five castings out of thirty were defective. Without the x-ray examination these flaws might have been revealed by an explosion.

Leaded Liquor

Lead is found to be a common ingredient

of our modern prohibition liquor. The illicit distiller is wont to use a lead pipe for his condenser because he can fashion it readily and without special tools.

Home brew containing tartaric acid is frequently stored in crocks coated with lead glaze. The acid works while the undertaker sleeps.

Rovers

The London Rovers have formed "An Association of Voluntary Donors of Blood to the London Hospitals." The Rover is ready to serve at any time. He has already been grouped, and upon receipt of a call he takes a taxicab and proceeds to the hospital, where his blood is at once available. The Rover receives no fee for his services, but merely a Certificate of Honor. The explanation is that the Rovers are former Boy Scouts, who continue to do their good deeds.

The Knowing Corn

Old ladies who forecast the weather by their corns apparently rely on elementary principles. Chemists point out that the changing amount of moisture in the atmosphere causes expansion and contraction of shoe leather, and that humidity and foot comfort are thus closely connected.

Humidity not only shrinks a shoe, but also renders it impermeable to air, thus making the forecast more reliable.

Daylight Stars

The old belief that stars can be seen from the bottom of a mine shaft is a myth, says Charles Clayton Wylie of the University of Illinois. Stars are visible in daylight with the aid of a telescope because of the light-gathering power of the instrument. The tube of the mine shaft, however, is not an aid to vision.

At times the planet Venus is bright enough in the daytime to be seen from the shade of a large building. Under such circumstances it would also be visible from a mine, if the shaft happened to point directly at the planet. This occasional visibility of Venus may have given rise to the popular legend of the stars.

THE BIOLOGIC VIEW

GEORGE A. BOYD, M.D.,

COLORADO SPRINGS, COLORADO

Presidential Address Before the Colorado State Medical Society, September 29, 1925

"Once the ideal of a being healthy, sane and free has entered the mind, even as a day-dream, the spirit of man will know no ease until all men are healthy, sane and free."—Wiggam.

The question as to whether or not the facts of science, with the conclusions derived from them, shall be a part of our educational system has been thrown open in recent years by an attempt on the part of four state governments to prescribe the limits of instruction in our public schools. These facts have actually been suppressed in one state, and the law upheld by its courts. Another criticism of medical science of every different import and origin has been to the effect that through the ministrations of medicine the germ plasm on which the vigor of the race depends is deteriorating.

This attempt by the religionists and the statesmen to limit our knowledge and prescribe limit to our conclusions, and the charge of the eugenists that we are misapplying our knowledge to the detriment of the race concerns the chemist, physicist, biologist, sociologist, and the student and practitioner of medicine. On the one hand the usefulness and rightness of science is challenged, on the other it is charged that science as now used becomes a menace to mankind.

I am going to attempt to present the biologic view, and make its answer. To gain a starting point a few definitions may help. Physics is the science of the properties and laws of mass. Chemistry is the science of the changes of form of mass due to molecular re-arrangement. Biology is the science of life, and connotes all phenomena manifested through organic structure. Sociology is that department of biology having to do with men's life together—the histology, anatomy, and pathology of society. Industry is that department of sociology having to do with the mechanism of production and the processes of distribution. Government is that department of biology that defines and

enforces conduct in accordance with the natural laws of social life. Statesmen are the practitioners of the art of government. Religion is that department of biologic science having to do with man's concept of the ultimate cause of observed phenomena, his dependence upon, and obligation to submit his life to, and order his conduct in harmony with its every known law. Medicine is that department of biologic science dealing with the reproduction, growth, development, health and disease of the individual in society. It applies scientific knowledge in the direction of the prevention and cure of disease. But all the human aspects of man's body, all the superstructure of emotional and intellectual activity, all moral and religious concepts of man, a vast majority of his joys and sorrows, his enthusiasm and depressions, as well as his physical well-being, are the result of the inter-action between the individual and the social body. The soundness of the social body that so profoundly reacts upon and determines the growth and development, the health or disease of the individual thus becomes of great moment to medical science. In fact, medical knowledge embodies the facts that shall furnish the only rational approach to the larger field of social phenomena with which the statesmen must concern himself if he is ever to master his problems.

By these definitions we reveal the important fact that we are all toilers in the field of realities. We are all seeking to know more intimately natural relationships and the laws that govern them, with the common purpose of expanding and deepening life's meanings through an appreciation of these realities and obedience to the natural laws.

To all of you the question of the origin and nature of life has presented itself. What happened? You no doubt did what millions before you have done, and accepted some current theological belief that life was a special act of creation. To try to draw aside the curtain of inscrutability has been

considered a violation of the privacy of divinity. Your mental efforts therefore ceased, and you were relieved from the distress of suspended judgment. Your early mental complexes, a moment before threatened by a new mental effort, regained their sway, and the old order of your every day life resumed its even tenor. Had you made an effort to answer the question, with such instruction and training as our schools have so far given, I think you would have found the question almost impenetrable.

When you asked the question of the origin and nature of life you little suspected that you were asking a question in chemistry and physics, yet this is the only approach that will give you any rational answer to your question. Guided by the hand-maidens of chemistry and physics, biologic science has formulated certain provisional concepts of the origin, nature, and laws of life. Biology makes bold to present the knowledge upon which this concept is based as a key to the solution of the impasse now confronting us. Biology seeks to answer the question of the origin and nature of life by the same methods the chemist used in solving the question of the origin and nature of water. When you make the attempt from this viewpoint you are led into a world of enchanting realities that deepens and broadens every meaning and possibility of life. Medical science has hewn the chief pathways leading into this wondrous tabernacle of life.

Let me try to visualize the main facts and laws underlying the biologic concept of life, and make some application of these facts and laws in their relation to religion, industry, and government, with the purpose of lighting the way to that far-off day of a social body, healthful, sane, and free.

The electro-magnetic theory of the universe was first suggested by Faraday, advanced by Maxwell, clearly stated by Helmholtz. Faraday, according to Pupin, suggested that matter itself consists of centers of force, with lines of force proceeding from these centers in every direction to infinite distances; and where these lines are, there is the body. In other words, every material

body, like every electrical and every magnetic charge, extends to infinity by means of these lines of force, and hence all material bodies are in contact—thus explicitly denying the existence of ether. Pupin further says that no mortal man ever suggested a bolder conception and yet today a conception regarding the structure of matter very similar to that first conceived by Faraday is rapidly gaining universal recognition, not merely as a new metaphysical speculation, but as the logical and inexorable demand of experiment. (Immigrant to Inventor, 1924, Page 229.) The modern addition to Faraday's concept is that of the negative energy-bearing electron ring with its positive proton core as the ultimate center of energy and matter.

Life is that part of universal energy manifesting itself through organic structure. Living matter and energy do not differ in kind from the energy and matter found in the inorganic world. The distinguishing feature of living phenomena is the continuous, simultaneous, heterogeneous, inter-dependent, inter-related, coordinated, self-repeating congeries of changes resultant upon the flux of energy through a sustained molecular structure. The physical unit representing this complicated mechanism is known as the cell. The material elements entering into the structure of the cell are all known; their relative weight, their combining valencies, and their electric reactions. Eighteen of the building stones, or molecular aggregates, are known:—their laws of synthesis and dissociation; the relative position of the carbon atom in reference to the acid and basic radicles; the mechanism of the moving equilibrium by which they maintain constancy of structure in the midst of ceaseless change, and through this mechanism meet incident forces by internal and external adaptations. Our knowledge of the physical structure of the cell as it emerges from the extra-visual field of chemical elaboration constitutes a chapter in the achievement of the human intellect of surpassing usefulness and beauty. The physical changes a cell undergoes in its own reproduction have been worked out in great detail, and a new con-

cept of nature's method of continuous and expanding life has been revealed.

I know of no field in human effort where a series of observed and related changes has resulted in such expanded meanings and useful applications. By these discoveries the entire plan of organic evolution has been brought within the horizon of the intellect. He who desires may possess himself of this opulence of nature's delicate process in the re-birth, growth, and continuance of life. If he is open-minded and industrious he may learn the meanings and usefulness of sex; the extraordinary expansion of life is made possible through the combination of sexual and asexual development. He may learn that through asexual reproduction a protecting mechanism is built about the germ cell that carries in its chromosomes the determining units of the adult parts of the body. He may learn how the germ cells, by reduction and redistribution of the two hereditary groups of chromosomes within their nuclei, preserve and combine the morphologic form of the species, little or not all disturbed by the vicissitudes of the individual life that gives them shelter. He may follow that marvelous series of changes known as recapitulation through which the developing embryo reveals the history of its organic evolution, and how spermatogenesis provides for the production of equal numbers of the sexes, and how observations of Mendel reveal the mathematical proportion of these hereditary factors. All this constitutes knowledge of fundamental importance in dealing with the large problems of both individual and social life.

The primal law underlying life's multiplying forms and expanding energies is that of diversion of labor and exchange of products, with the correlative increase in structural complexity and exaltation of function. Limited by the physical law that mass increases as the cube of the diameter, while surface increases as the square, and since it is necessary to acquire through surface exposure materials for sustaining internal structure, life has never built a cell much beyond microscopical dimensions. Thus all the fundamental phenomena of life, nutri-

tion, growth, motion, sensation, and reproduction, are forever limited within the narrow confines of the cell. The cell alone can only repeat itself, and living energy can find no wider expression than that expressed in a single cell, though it might repeat this expression an infinite number of times. But there is a plan of division of labor and exchange of product in the cell. Certain groups of molecules digest. Other groups build digested molecules into structures of the cell. Other groups make adaptive changes of the material in the cell. By like specialization of aggregates of cells, as in the function of digestion, the process of differentiation of work, and the correlative modification of structure is made possible. Through the application of this law the multicellular world came into being. But again physically limited by the disproportion between the increase of mass and surface and food resources, life was limited in the size of the individual organism. It was impossible to make a whale as large as Pike's Peak, or to make a man the size of a whale, so it was necessary to start with the individual, and by again differentiating the labor and exchanging the product nature built the social organism. And again the social organism has limitations based upon its own plan of differentiation of function.

From the loosest possible diversity of labor and exchange among savages to the incomprehensible nexus of orderly, heterogeneous, continuous, coordinated exchanges of the present time, with all the intelligence, fellowship, and love they imply, the cohesive power that binds the civilized world into one great whole is the every-increasing life and intelligence resultant from this primal law. This primal law is the force that binds every moral obligation, gives authority to government, insures liberty of action in the midst of a multiplicity of dependencies; and this primal law is the hope of all future progress. To say that government exists to secure justice among men is to say that government exists to keep inviolate this primal law of our social existence.

If this concept of the universe and life be approximately correct, all anthropomorphic

concepts of the Deity, all special acts of creation, all fortuitous happenings pass into the limbo of wish-thoughts and imaginings, and the reign of law in the natural world becomes an all-imperative fact. The eternal verity, unknowable, and yet inescapable, that veils itself behind this universe of order and understandable realities is the God of the scientific mind of today. With an absolute faith in this verity the scientist subdues his prejudices, erases personal bias, puts vanity under foot, and with open mind goes forth an honest, earnest, industrious seeker of the eternal truths that he may order his conduct in obedience to them.

To try to manufacture truth by fiat, or to support a preconceived idea by slanting the truth, or to support by sophistry ideas and beliefs discredited by known facts and laws sets aglow the true scientist's contempt. He knows it is the damning sin that curtains the windows of the mind against realities and the eternal truth behind them. The faith, the labor, the type of mind and character of the true scientist must face the old order and realign the living energies in harmony with natural law.

In our public schools and universities so far there has been made no systematic application of the known facts and laws of chemistry, physics, and biology in an effort to explain life in its simplest or more highly organized forms. Between the student and this knowledge stand three great opposing forces. First, a religion that refers the ultimate cause of all phenomena to a special Creator, who takes a personal interest in the individual and makes life's supreme purpose the winning of an eternal future life in heaven by obedience to His personal commands. Biologic knowledge so unrelates this imaginative wish-thought authority to any of the known realities that such a religion would lose its claim as a directing power over human destiny, should established scientific truths become a part of our educational system. Second, an industrial system that accepted and used the accumulated facts and laws of science to build up a mechanism of production of undreamed power upon an entirely misconceived con-

cept of the rights of ownership, which an adequate understanding of biologic phenomena would correct. Third, a constitution, a system of laws, and a type of statesmen committed to the maintenance and perpetuation of the incompetencies of both religion and industry, and wrong in their concepts of the function of government.

Thus government, with sickening certainty, has provided for its own humiliation by delivering itself into the hands of an economic power that uses it or ignores it by virtue of ownership of natural resources, of all major industries, and all the vast mechanism of production and commerce. Only by acquiring a knowledge of biologic law will it be possible to acquire the wisdom necessary to withdraw these sanctions of government and to re-establish the functions of government in accordance with the natural law, thus lifting the dependent industrial slave to a plane where he may use his natural powers to expand his sense of personal worth and dignity, and again respond to that inner urge to vaster things.

This trinity of religious, economic and governmental control, although resting upon the sands of error, determines the channels through which living energy is manifested and limits civilization to that type which can only express living energies parasitic upon itself.

The biologic view recognizes the fact that life is limited inexorably by the mechanism through which it expresses itself. A worm can only give expression to that amount and quality of life for which its anatomy provides. A jay bird is removed in quantity and quality of life from the worm only by the differences in their anatomies, and the correlative exaltation of function. Any individual or any social body is likewise limited in its expression of life in accordance with its structural mechanisms.

To suggest to an executive or legislator that his true function is to understand the biologic phenomena under which the social body works, and to suggest to the ministry that its true function lies in grasping this whole mass of known facts and the laws derived from them is justified by their at-

tack upon the integrity of the scientific achievements and purposes of those who rely upon realities as a guide to a higher destiny. We cannot, however, be contemptuous of the executive, the statesman, or the minister. They are victims of polarized belief in authority which made its guess when the mind was in its discontinuous stage of development, when supernatural agencies were the accredited source of observed phenomena, and before the development of the idea of the reign of natural law. This is the most perplexing and most menacing fact of this age:—that statesmen and ministers represent that common belief that the edicts of man are the essence of religion and government, and that they refuse to investigate the natural order. Thus is stabilized a religion and an economic system that so perverts the natural order that the only possibility is a social structure which subordinates the activities of the multitude to the development of the few.

The criticism of the eugenicist that medicine, by saving the lives of weaklings to propagate weakens the germ plasm, is supported by facts. Its weakness lies in failing to recognize that a man-made and controlled industrial mechanism does produce and will continue to produce weaklings in spite of the protection that medical science brings to society, a protection without which it could not continue to exist.

This criticism opens the whole question as to the sources of those deleterious reactions of the social body upon the individual's social pathology. All the vast amount of energy expended from moment to moment by our civilization must be replenished with the same constancy that it is expended. It must come from the earth's store through human effort. The industrial system is a gigantic mechanism for transforming and transporting this mass and energy into the bodies of the one hundred and twenty million individuals whose bodies transmute it into that mighty stream of national life that each moment bears from an ancient past into an infinitely nascent present. And as the worm and jay bird can only develop a volume and range of activities dependent

upon their structural plan, so society is limited in its possibilities by the type of industrial system it evolves.

Government is a new event in the evolution of life. It introduces a new factor in the way of a conscious effort to define the laws of social relationships through constitutional document and statutory law. Once these become the ruling factors they acquire all the functions of a natural law. By the social body living under these rules they are accepted as natural laws, and the consequences flowing from them are considered as the inevitable consequences of the natural order, and hence are accepted without complaint.

It is through this belief that constitutional and statutory law are synonymous with natural law that grievous errors mould social structures so out of harmony with the natural order that the whole superstructure of society crumbles before any intelligent effort to apply the natural law. That our constitutional provisions violate the natural order by failing to make production the basis of ownership is certain. That artificially granted ownership of natural resource brings such disproportion between living effort and its returns as to make physically impossible, or even desirable, a further social evolution, is also certain. It establishes a private over-lordship and the correlative dependents whose living energy, beyond mere existence, is appropriated by this over-lordship and wasted in all the selfish ways that the vanities and egotism of protected and irresponsible life can invent.

To place the source of all this energy used in maintaining the social body under the control of any agency is to submit the destiny of that body to the wisdom and understanding of that agency. It is all an extraordinarily daring risk, for it endows that agency with a super-function over the natural law. But whether right or wrong, it has become the dominant factor in social evolution.

Biologically speaking, government is a new event, and just such a daring one. Its purpose is to place social conduct under the control of the whole social body. So far it

has only succeeded in placing control partly under the social body and partly under private control. This split control has arisen from failure to see that the only natural basis for private ownership is the individual's living efforts invested in the object owned. All possession otherwise obtained violates the natural law, and when government grants the power of private control of nature's stores of energy she establishes and contracts to protect a control of the natural resources by a limited few. The warp that this provision gives to social life is the source of our social pathology. It produces the superiority complex, irrespective of personal worth, and the inferiority complex in spite of personal worth. It reduces all the gratuities of science to the humiliating role of making fewer those who control, and of making greater in number and more insecure those controlled. It reverses the natural order of increasing satisfactions with increasing complexity of structure and function. It saps faith in the rightness of the natural order by accepting the results of man-made laws as results of the natural order.

The biologic view recognizes that the scientific adjustment of our constitutional and statutory laws to the natural laws of social evolution is the greatest problem of the ages. Its proper solution has as its reward nature's infinite resources in which life may expand into exalted meanings and powers yet undreamed of.

Such is the faith that invites the man of religion into fields of known facts and laws that he may evaluate them at their real worth and go forth a leader unfettered by dogma, sustained in his faith by a knowledge of things seen and understood in an effort to meet this common problem.

To statesmen, more than to any other group, belongs the responsibility of the practical work of making a start at such effective adaptations as the present will permit, and of directing an orderly and systematic research into the anatomy and physiology of social life, and to use this knowledge for guidance in analyzing the provisions of our constitution and statutes in order to elimi-

nate from them the violations of the natural order.

The biologist recognizes, at least in some degree, the magnitude of this undertaking, and how ridiculous it is to expect the present type of executive or legislator to break from his present viewpoint, and from the political and economic forces that have made him.

The social physician of the future, the man who applies the knowledge of biologic fact and law to the social ills that so menacingly afflict us will logically come from that group of workers who have developed the biologic science—the medical profession. They are freer from the economic control now exercised by individuals and corporations than any body of scientific workers. They come in intimate contact with the physical ravages and the psychology produced by the industrial system that uses life to develop industry, rather than industry to develop life, and they can understand the utter degradation of that ideal that looks upon increase of numbers, extension of commerce, and accumulation of wealth as the essence of progress. They know that new values, new meanings of life and human relationships must enter into any ideal that directs the social forces of the future to that higher destiny granted by the natural law.

SUBTEMPORAL DECOMPRESSION

All the seigneurs within the town asked me to give special care, above all the rest, to M. de Pienne, who had been wounded, while on the breach, by a stone shot from a cannon, on the temple, with fracture and depression of the bone. They told me that so soon as he received the blow, he fell to the ground as dead, and cast forth blood by the mouth, nose and ears, with great vomiting, and was fourteen days without being able to speak or reason; also he had tremors of a spasmodic nature, and all his face was swelled and livid. He was trepanned at the side of the temporal muscle, over the frontal bone. I dressed him, with other surgeons, and God healed him; and today he is still living, thank God.—Ambroise Paré, (1537-1590).

TYPHOID AND SEWAGE

Before the sanitary drainage canal was opened in 1900, the annual typhoid fever death rate in Chicago was 173 per 100,000 population.

Now there are 1.4 deaths annually from typhoid for every 100,000 population.

It is estimated that the drainage canal which takes care of the sewage of the district saves 25,000 lives annually.

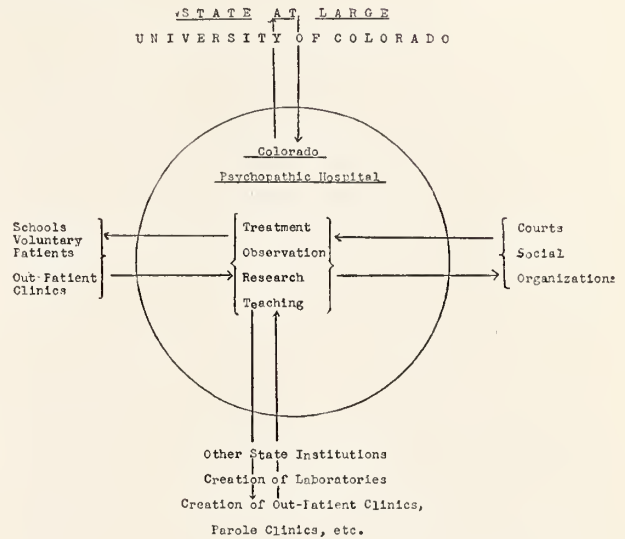
THE COLORADO PSYCHOPATHIC HOSPITAL; ITS COMMUNITY AND STATE-WIDE FUNCTIONS*

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The Colorado Psychopathic Hospital is the fifth psychopathic hospital in the country associated with a university and general hospital. It is so splendidly constructed for the treatment of acute cases of mental disorders that I feel very optimistic concerning its possibilities. However, since everything concerning the Hospital, including our organization, is so new and our program just being established, it would be best to speak of the functions of the Colorado Psychopathic Hospital in relation to what we hope it will in the future be able to bring to the various communities throughout the state.

We are justified, we think, with the experience we have had since the opening of the Hospital, February 16th, during which time we have treated 150 cases, in formulating our program regarding the subsequent activities of this Hospital. The functions of the Colorado Psychopathic Hospital are illustrated in the accompanying chart and are similar to those established by Dr. Barrett at the University of Michigan. In order of importance they are: treatment of mental disorders, particularly during the acute stages and including the preventive aspects of mental disease; the observation of mental cases of all types; research into the causes, therapy, social and laboratory aspects of mental diseases; and teaching of medical students and the later elaboration of post-graduate instruction regarding fundamental issues of clinical psychiatry.

In carrying out these four functions we have organized our work to consist of the following divisions: First, Psychiatric Nursing; second, Psychiatric Social Service; third, Occupational Therapy; fourth, Department of Psychology; fifth, Neuropathological and Research Laboratories; sixth, arrangements for Statistical Data; and, seventh, an active Out-Patient Department with arrangements for the examination of the pre-school child, the school child, the adolescent child, cases of incipient psychoses and for the fol-



low-up care of all patients discharged from this Hospital. It is expected that a traveling Clinic, reaching the remote portions of the State of Colorado, will be established in connection with our Clinic.

The treatment and prevention of mental disease is naturally the most important function of any psychopathic hospital. Our approach to the treatment of mental disease in the main is from three viewpoints—first, the toxic and physical disorders; second, the organic disorders; and, third, the psychogenic upsets and constitutional make-ups and the so-called mental factors. A study of the individual as a whole in the direct sense of psychobiological integration is, therefore, attempted. A study of the physical resources of the patient, metabolic disorders, the findings of somatic disease with prompt and intelligent medical and surgical treatment is naturally expected in any hospital for the treatment of mental disease, and facilities for this purpose should always be present. I am pleased to state that the close proximity of the Colorado Psychopathic Hospital to the General Hospital with its staff gives us all the facilities and expert personnel needed in the treatment of mental disorders. It is of interest thus far that several operations that were great factors in the recovery of our patients have been performed, particularly the removal of toxic goiters in two cases. Close

*Read at the annual meeting of the National Conference of Social Work, June 11, 1925.

association and affiliation with the General Hospital and laboratories of the University have been at our disposal, resulting in complete laboratory investigation in each case, including in many cases a study of the blood chemistry, basal metabolism, etc. Although we do not wish to over-emphasize the importance of physical and somatic factors in mental disease, intelligent and prompt management of these disorders when they are actually present is essential, and no hospital can be complete without these therapeutic aids.

In the fundamental organic reaction types one has usually a specific cause for the mental disorder. This is particularly seen in the treatment of cases of general paresis. Specific treatment in these cases, if instituted early, will frequently insure an arrest of the destruction of the brain cortex and in many cases the return of the individual to the community. In the treatment of general paresis we have formulated measures for active control of the various drugs used. For instance, at the present time we are controlling tryparsamide used alone with a group of cases treated with tryparsamide combined with the arsphenamines and sulpharsphenamine. It is our desire in the future to inoculate paretics with malaria, since the results from many clinics thus far have been encouraging with this type of therapy.

Treatment from the viewpoint of psychogenic upsets consists in attempts to adjust the individual to the actual situation. Treatment of this type should consist of reconstructive therapy through a study of the personality resources of the patient, evaluated from the emotional life, the habit formations, instinctive make-up and intellectual resources. The actual environment, disturbing and conflicting factors such as we see frequently resulting from faulty vocationalization, or in reaction to highly specialized emotional experiences during childhood, or to economic stress and strain of various types, must be considered. The reconstruction treatment of psychoses, therefore, consists in evaluating—first, what the individual has to react with, mainly personality resources, and second, what the individual has to react to, consisting of the actual situation which must be met. As a result of this equation various degrees of

adjustment and mal-adjustment are present and a general study of the principles of social psychiatry must always be made. These studies are of the greatest importance in elaborating preventive therapy. The reaction patterns of mental disorder in the sense of integration are readily divisible into—organic reactions, delirious and hallucinatory disorders, paranoid reactions, affective reactions consisting of the elations and depressions, psychopathic defects, psychoneuroses and schizophrenic reactions. A review of the departments of the Colorado Psychopathic Hospital in their relation to treatment and to the other functions previously enumerated can be readily made as follows:

The Psychiatric Nursing Organization, under the leadership of Miss Helen C. Sinclair, has already made definite strides with the prime purpose of insuring excellent psychiatric nursing for the individual patient, stimulating activity in our patients, as well as taking all measures to insure their physical comfort. The general improvement in the attitude of the patients to the mental hospital, with their realization that there is no disgrace or social stigma attached to mental disease, has been encouraged by this important organization.

Our Social Service Organization reaches out from the Hospital and is invaluable as it makes a study of the reactions of the patient to his environment before he is admitted to the Hospital, attempts to insure establishment of a proper environment before he is discharged and in many cases provides vocational aids. A study of the family group and the institution of treatment for perhaps more than one of them is brought about through this important division. The psychiatric social service division should be stressed from the therapeutic viewpoint and not merely from the viewpoint of the collection of data collected in the histories. The importance of this division in out-patient work and in the work of traveling clinics must be emphasized.

Likewise, Occupational Therapy with the prime purpose of producing activity in the patients constitutes one of our leading psychiatric therapeutic aids in the management of mental disorders. A fully equipped department such as we now have in the Colorado

Psychopathic Hospital with provisions that insure activity in our patients, except for those who are actually ill or otherwise engaged, will prove to be of the greatest help in shortening the duration of patients' stay in the Hospital.

In the Department of Psychology much is accomplished of definite value regarding certain behavioristic doctrines and clinical psychological issues by which one may reach an evaluation of special abilities and disabilities in all cases examined, instead of relying on the magical intelligence quotient. The work of this division in close association with the study of the individual offers much for the future and is especially valuable to our out-patient organization.

One hesitates to mention the needs for careful neuropathological studies and research in connection with mental disease. It is hard to realize that only a short span of time has elapsed since we considered mental disease to be entirely on the basis of organic changes in the brain. Productive and stimulating researches in neuropathology, particularly in many of the delirious reactions, may offer much for the future. In combination with psychopathological issues, studies of possible brain changes in schizophrenic disorders may aid in the formulation of definite preventive measures. On the whole the neuropathological issues, although of interest and fascination to the individual worker, are apt to prove discouraging as to the actual demonstration of cortical lesions in our functional psychoses; at least no definite work has been performed up to the present time that is conclusive in this regard. Further indication of the need of well controlled studies of the individual as a whole is found in the consideration of the non-specificity of mental disorders in general. The problems of research for this Hospital are naturally many and the seven mental reaction types or patterns previously mentioned all offer fertile fields. It is our plan each year to conduct researches in one of these seven reaction types elaborated by Adolf Meyer. Beginning with the first group, consisting of the organic reactions, studies in general paresis are now being conducted. Next year it is our plan to conduct studies of the delirious reactions, including an analysis of

symptomatology, type of constitutional make-up, exogenous factors, metabolic disorders and neuropathological changes.

The teaching function of any psychopathic hospital is of great importance and far-reaching significance, particularly if this instruction instills in the medical student, who is the doctor of tomorrow, an optimistic attitude regarding prevention and treatment of mental disorders during the incipient stages. We feel more time should be devoted to psychiatry in the school curriculum, particularly more time for section teaching, ward rounds and instruction in the out-patient clinic where the student may familiarize himself with the early types of nervous and mental disorders. Instruction of at least eighty hours' duration should be given each student to insure a program of this type. Post graduate instruction, particularly concerning the modern conceptions of mental disorders, should receive encouragement and all provisions for this should be present in any psychopathic hospital. Plans for the development of post graduate instructions from both the clinical and laboratory viewpoint are being made in this Hospital.

A Department of Statistics serves a useful function and gives greater accuracy regarding the prevalence of mental disorders, as well as the outcome of treatment. The classification devised by the National Committee for Mental Hygiene has been of great help and value in improving statistics.

In relation to the community the State Psychopathic Hospital has in its out-patient department its greatest function. In the organization of an out-patient department several divisions are necessary to insure the examinations, not only of cases who have actually developed psychoses, but of early mental cases in which treatment and advice may result in preventing a later serious mental breakdown. These divisions have been previously enumerated. The out-patient clinic should serve as a center for all the social agencies of the community. In these gatherings special stress should be laid on the application of psychiatry to the understanding of mental mechanisms, emotional

conflicts and interpretation of various conduct disorders frequently encountered in juvenile delinquency, and in meeting the problems of child guidance and school training. We are very pleased that so far the social service workers of the community have been using the Hospital as a gathering place for informal talks and discussions of the problems of mental hygiene.

The following case shows the need of work among pre-school children. Such cases deserve the closest attention and psychiatric study from all viewpoints.

Mamie, age 5, was referred to our out-patient clinic in March with the complaints of chronic headaches and vomiting. The Social Workers stated Mamie had been examined by 32 physicians. Extensive laboratory work and x-ray studies had been made and, although no physician had made a definite diagnosis, many had suggested brain tumor. Mamie had been a constant care and worry to her family. Thanksgiving Day, 1923, Mamie first complained of an intense headache. The patient cried most of the time and appeared to be in great agony. Vomiting ceased after the first few weeks, but the headaches have continued. Occasionally there was a two days interval of freedom from this complaint. At times the headaches lasted for two weeks and Mamie would hold her head at the temples, throw herself from side to side and complain of pain at base of brain. She had attacks when she would draw her head and heels together and say she was unable to straighten out until the pain had left her. During these attacks the patient was unable to eat and did not want anyone near her and was said to have slept most of the time. Developmental history was normal. The patient secured the undivided attention of her entire family due to her illness. She wanted to be rocked most of the time and this wish was always gratified by her mother. Until the development of the patient's headaches Mamie was considered normal in every way.

Examinations in the clinic revealed a complete absence of organic findings. A very careful habit routine was therefore given the mother, who cooperated very well to

the extent that she ignored the complaints of headaches, sent Mamie to kindergarten, created a better dietetic routine and stimulated new interests and activities. The mother in the beginning was very skeptical regarding our treatment of Mamie's trouble, but followed out the above instructions very well.

The social service reports on this case are interesting. For March and May they show that Mamie's mother had been carefully following our suggestions concerning definite routine and habit training and that she had completely changed her attitude as to Mamie's having an organic condition. Mamie is attending kindergarten. She no longer complains of headaches and vomiting has ceased. Her mother takes pride in speaking about her remarkable recovery. It is interesting that on close questioning Mamie admits that she was pretending and that she enjoyed the rocking and the special attention given her during her invalidism.

It is certainly well worth while to establish adjustment at the age of five and so prevent total invalidism during later life.

One of the most important activities of the out-patient department should be the organization of a traveling clinic where routine neuropsychiatric examinations of children throughout the state could be made. A synopsis of our first participation in a traveling clinic in cooperation with the Child Welfare Bureau of the state follows:

During six days 762 patients were examined. Out of this group 90 cases, or 11.8 per cent, were referred to us for neuropsychiatric examinations. This included 3 infants, 11 pre-school children, 68 school children, and 8 adults. In our classification of the behavior disorders in children 40 were classified in the personality defects group in reaction to the actual situation; 28 fell in the organic group; 5 were psychotic and 2 in the endocrine group.

One of the patients examined in the Traveling Clinic, was Millard, age 16, in his second year of high school. He was referred by the principal of the school with the following history: One afternoon in the latter part of April immediately following examinations

Millard left school complaining of a headache and inability to remember words. He said he knew what he wanted to say, but was confused. He complained of being cold all over and felt that his heart would stop beating. He wandered home and his mother noticed that he did not recognize his surroundings. He went to bed and the next morning was considered normal.

Study of the situation revealed that Millard had always stood first in his class. Following recent examinations he fell to second place and developed the above symptoms. He continued to feel that he had heart trouble and was relieved by the examination of the pediatrician. In a careful interview we explained to him that the mental mechanism involved in his not accepting the situation in which he was placed consisted of his substituting physical complaints instead of actually meeting the situation of falling to second place in his studies.

This boy, along with many similar cases examined, should be safeguarded against later upsets and assisted in meeting unpleasant situations to the best of his ability, thereby retarding or actually preventing later mental upsets.

Reports indicate the wealth of material that can be reached and the possibilities for actually treating and preventing mental disease. We plan to continue to take part in the activities of the Child's Welfare Clinic and hope to reach by this means all sections of the state—the Hospital to furnish one psychiatrist, one social worker and one psychologist for this purpose.

The state psychopathic hospital should play a role in the organization of a state society for mental hygiene. The personnel, however, for this organization had best be outside of the hospital, although the hospital should cooperate and further this movement and give active support. Again, it should be emphasized that in the program for the prevention of mental disorders the cooperative effort of all social and professional groups of the state is necessary and the needs of mental hygiene cannot be met successfully by any one group. We feel that

the psychopathic hospital movement will prove a success wherever it is inaugurated. It is the natural outcome of many years of striving and earnest effort to place mental disorders on the same basis as physical disorders. We are approaching the time when general hospitals with their splendid delivery rooms, solaria for tuberculosis, excellent orthopedic appliances and apparatus, and modern facilities of all types will also have provisions for the adequate care and treatment of mental patients. The key note of the state psychopathic hospitals in facing all the problems to be met should be that of the well known latin dictum, "numquam non paratis."

It may be of interest to this association to know our most recent experience in regard to our educational program for the community. We inaugurated the system several weeks ago of inviting all relatives of the patients to our lecture room twice a month directly after visiting hours for fifteen minute talks regarding the causes, treatment, and prevention of mental disorders. Much to our gratification these meetings have been attended very well. Twenty people attended the first meeting. After a fifteen minute talk by some member of the staff, relatives are given a five minute period to ask questions. This has led to a very close association between the Hospital and the Community, as well as helped to break down that feeling prevalent among relatives that mental diseases are a disgrace and develop on a mysterious basis. The experiences in the Colorado Psychopathic Hospital thus far with this type of education have been very pleasing and promise much for the future.

In conclusion, I wish to state the earnest and stimulating hope that the Colorado Psychopathic Hospital will take an active part in the treatment and prevention of mental disease and so follow in the steps of the other psychopathic hospitals—the Boston Psychopathic Hospital, Henry Phipps' Psychiatric Clinic, the University of Michigan Psychopathic Hospital, and the University of Iowa Hospital.

EXTREME RESPIRATORY PARALYSIS FOLLOWING CAUDAL ANAESTHESIA

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Caudal anaesthesia is one of the safest and most established procedures of regional anaesthesia, and until recently no serious accidents have been recorded following its administration. Zwiefel¹, in reporting 4,200 cases, notes 10 fatalities. In but 3 of these, when death followed within ten minutes after the injection does he hold the anaesthesia responsible. The cause of death is reported as acute procain poisoning. In a series of 600 cases coming under our direct or immediate attention^{2,3,4} we have not seen death precipitated by caudal anaesthesia. We have, however, seen mild transient reactions and recently a most severe case of respiratory paralysis which persisted for two hours and forty minutes. It is reported in detail as follows:

Mrs. D., primipara aged 34, entered the hospital in labor and received the usual ether-oil rectal anaesthesia⁵. No further progress was made until the following day when labor really began. At 10:30 a. m. there was complete dilatation of the cervix and the perineum bulged with the head presenting just within the vaginal outlet.

Caudal anaesthesia was induced at 10:35 a. m. Using a medium sized nickeloid needle (3 inches long), entry into the sacral canal was easily effected. Over one inch of the shaft was showing outside the sacral hiatus. Neither blood nor spinal fluid were obtained upon aspiration when the needle was withdrawn slightly and rotated.

With but one and one-half inches of the shaft of the needle within the sacral canal 40 c.c. of a freshly prepared 2 per cent novocain solution was slowly injected. Aspiration was attempted prior to the injection of every 10 c.c. of solution. The results were negative.

The patient was instructed to report any headaches, optical distress or sensation of nausea. She felt fine and appreciated the relief from her pains.

Five minutes after the injection the patient reported tingling sensations in her legs. Her perineal anaesthesia was soon complete, and upon experiencing three good uterine contractions without pain, the patient worked well

with each expulsive attempt. The membranes bulged, ruptured, and the head was beyond the perineum partially delivered when the patient suddenly complained that she could not breathe. Her respirations first were short and labored, then becoming fewer and irregular, finally ceased entirely. This was exactly at 11:00, twenty-five minutes after the injection had been completed.

As soon as the patient complained, she was raised to an erect position, but as she continued to grow worse artificial respiration was immediately started and inhalations of 100 per cent oxygen given.

Pituitrin M V had been given at 11:00 but had no effect. At 11:10 caffeine sodium benzoate grs. $7\frac{1}{2}$ were given intramuscularly. The patient showed no signs of recovery. The slow oscillation of the eyes soon stopped and the pupils began to dilate. The artificial respiration with oxygen was being maintained but the heart gradually became slower. The rate, 90 at the apex, taken with a stethoscope, dropped to an irregular, intermittent beat and suddenly paused for a seemingly prolonged period. Perhaps a few seconds elapsed without a sound. We immediately injected directly into the heart⁶, after blood had been withdrawn into the syringe, 2 c.c. of 1:1000 adrenaline chloride and increased the depth and frequency of the artificial respirations. Time, 11:15. The heart began beating. The bounding pulse ran up to 180 or over. The systolic blood pressure rose to 100 and the patient's color returned. There were no signs of returning consciousness. As respiration did not become spontaneous, it was maintained with oxygen.

The infant's head was slipped over the perineum, using a low forceps application, and the delivery was complete at 11:30. The infant was pink and breathed very promptly, causing no trouble whatsoever. The mother's heart began to slow down following the delivery but was maintained by giving 2 c.c. of caffeine sodium benzoate intravenously.

A tight abdominal binder was applied. Still no signs of returning consciousness though

the intravenous caffeine had brought back the oscillation of the eyes.

All effort was concentrated on maintaining the heart rate which was not permitted to fall below 70 per minute. Repeated intravenous injections of caffeine⁷ never failed to bring it up and maintain the rate over a period of 20 minutes or so. Digitalin 1 c.c. and pituitrin 1 c.c. finally held the rate steady for longer periods. We did not deem it safe to give any massive intravenous injections with the embarrassed circulatory condition. At intervals when the heart seemed good the oxygen was discontinued. Respiration did not start up, and as the heart would become slower oxygen was readministered. No carbon dioxide was available to use as a respiratory stimulant. Finally at 1:40 slight diaphragmatic motion was observed, and with a little further assistance respiration was fully established at 1:45 p. m., exactly 2 hours and 45 minutes after it had ceased.

The patient returned to consciousness and was placed in a slight Fowler's position, the thorax kept warm with hot water bottles and digitalization begun. However, no pneumonia set in and with but a slight post partum rise in temperature to 99.6 the patient experienced an uneventful recovery.

A similar experience is reported in brief⁸:

A man aged 50 received caudal anaesthesia before a meeting of surgeons prior to a urological operation. Forty-five c.c. of 2 per cent novocain were used. Respiratory failure was almost immediate and after two hours of heroic measures this patient also recovered. It was generally conceded that in this instance the dura mater was punctured and that an overwhelming intraspinal injection had been given.

In the first case, however, since 20 or 25 minutes had elapsed before any respiratory embarrassment was noted, we believe that the acute novocain poisoning was dependent upon delayed venous absorption.

This might occur as Thompson⁹ suggests in his *Studies on Sacral Anaesthesia*, "In the demonstration body it was noticed that while the injection was being made the eosin solution flowed out from both external iliac veins". In our detailed report it is possible that after the completed injection the in-

creased pressure during the strain of the expulsive efforts forced a sufficient amount of novocain into the systemic venous system either through the plexus filling the sacral canal or through an injured vertebral vein.

Conclusions

(1.) Some toxic reactions may follow caudal anaesthesia either immediately or delayed, judging from our knowledge of two reactions in a series of 600 cases.

(2.) Acute novocain poisoning may follow the puncture of the dura mater and the intraspinal injection of the solution or the absorption of the novocain into the systemic venous system, through the puncture of a large vertebral vein thence into the external iliac veins.

(3.) In spite of these possible dangers we believe that caudal anaesthesia is relatively a most valuable form of regional technique and is a suitable and satisfactory procedure in various surgical, gynecological and obstetrical procedures^{10 11}.

(4.) The procedure can be made more safe by the addition of a prophylactic dose of caffeine sodium benzoate into the solution injected as is done in intraspinal anaesthesia¹².

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ULCERATION OF THE COLON CAUSED BY ENTAMEBA HISTOLYTICA*

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Entameba histolytica infection in man is a disease that is usually associated with tropical countries, and generally speaking, instances of this infection occurring in the more temperate zones are considered to be of comparatively rare occurrence. However, within one year the writer has encountered four cases of this disease in the state of Colorado.

The organism *entameba histolytica* was first described in 1875, by Losch, who gives a rather meager description of this organism. Since then various investigators have written on the nature of this organism, adding to the knowledge of its habits, size, shape, morphology, distribution, etc. As information on this organism accumulated, it became evident that not all forms of intestinal *entameba* were pathogenic, since *entameba* were found to reside in the intestines of persons who were otherwise in healthy condition. In Craig's opinion, Shaudinn is the first writer to give a clear description of the *entameba* which occur in the human intestine, both in health and disease, and to differentiate between the *entameba coli*, which inhabit the intestinal tract without producing a disease symptom-complex, and the *entameba histolytica*, whose presence in the body usually gives rise to a definite chain of distressing symptoms. Within the last twenty years Dock, Harris and Quincke of the United States, Musgrave of the Philippine Islands, Kruse and Pasquale of Egypt, and Rogers of India have given good descriptions of this disease occurring in the countries mentioned. During the Spanish-American war Craig examined the intestinal contents from two hundred persons coming from all parts of the United States. This group of persons were members of a hospital organization in the military service. Craig found that examination of the feces of these persons after the administration of saline cathartic showed that in sixty-five per cent there were present *entameba coli*.

At present the consensus of opinion among writers on human parasitology is that there

are two principal types of *entameba* occurring in the human body. The first is the *entameba coli*, which is a harmless guest of the colon, and which is extremely common in certain countries. According to Musgrave they may be found in the intestines of over fifty per cent of the inhabitants of the Philippine Islands. The second type is the *entameba histolytica*, which is less common in its distribution, but which is usually pathogenic when it occurs in the human body. Although the colon is the most common location of the *entameba* within the body, these parasites have been isolated from other parts. It is not at all rare to find these parasites in the liver, where the amoebae cause abscess. Simon reports a case of arthritis deformans which he attributed to the *entameba histolytica*. Moorhead reports six cases of arthritis occurring in persons with dysentery, in each of whom the *entameba histolytica* was found in the feces. Moorhead believed that the arthritis was an indirect complication of the infection by the *entameba histolytica*, although he did not attempt to demonstrate the organism in the joint fluids. Kafoid and Swezy successfully demonstrated the presence of these organisms in the joint structures at the lower end of the femur, after decalcifying the bone and staining the cut sections with iron and hematoxin. Warthin is considered the first to demonstrate this organism in the genital organs. He found them in the testes of a man who had suffered from chronic diarrhea. Hynes has reported the occurrence of this organism in the seminal fluid of a man, and other writers have reported them in focal infections of the teeth.

Most writers affirm the cecum and ascending colon to be the chief sites of the lesions, and most likely their opinion is based upon findings at autopsies. The rectal specialist sees these cases during life through the proctosigmoidoscope and finds in nearly every case the ulceration in the rectum and sigmoid. In advanced cases, especially those that have remissions, ulceration extends to the cecum; and this doubtless accounts for the remission and explains the rapid recovery following anti-

*Read before the Denver County Medical Society.

septic irrigations through the appendicostomy, even after resistance of similar irrigations through the proctosigmoidoscope. The ulcers are well defined; they are single and are raised above the level of the mucosa with a yellowish center, which is slightly depressed; the surrounding mucous membrane is red and inflamed. The yellow gelatinous mass which forms the center of the ulcer contains the amoeba.

In our own country this disease is not so rare as is usually supposed. In 1908 there were one hundred and eighty-two cases in the Johns Hopkins Hospital, and of these one hundred and twenty-three were from the state of Maryland. In all probability, there are many instances of this disease that are unrecognized. This failure to recognize infection by *entameba histolytica* is partly due to the failure to examine the feces of persons with diarrhea; it is also partly due to faulty technique in conducting the examination, and to failure in considering the probability of this infection in the temperate zone.

The symptoms of this disease are fairly uniform. The onset frequently manifests itself with a sudden attack of cramp-like pains in the abdomen, which the patient is prone to attribute to some particular article of food that he has eaten; at the same time the bowel movements become more numerous, increasing in frequency four or five movements a day. As the disease progresses, the movements become more numerous, increasing to as many as thirty a day. This is due to the ulceration which results from the invasion of the mucosa and submucosa by the organism and the subsequent discharge of the products of inflammation into the lumen of the gut, causing the patient to have a constant desire to evacuate the bowel.

The diarrhea is always accompanied by tenesmus, a feeling as if there was something more to come away, and attempts to evacuate the bowels are manifested by excreta consisting of a mixture of blood, mucus, pus and sero-sanguineous exudate. It is to be remembered that the so-called movements are not in reality true fecal evacuations, but are attempts to discharge the accumulated mucus, pus, serum and other products of the inflammatory process which have resulted from the

ulceration. Chills, fever, severe headache, sweats, nausea and vomiting may be present. In some cases the disease has been mistaken for malaria. Loss of weight and impaired appetite is almost constant when the disease is of long duration. Anemia is pronounced in advanced cases, the blood showing a leukocytosis varying from 20,000 to 40,000 with an increase in the polynuclears; the erythrocytes may be reduced from 4,500,000 to 3,000,000.

One of the outstanding symptoms of this disease is the sacral pain, which practically all patients complain of. This pain is usually located in the region of the sacrum, and frequently extends down to the perineum. It is a sort of dull, heavy, dragging sensation, which is more or less constant and which is relieved by emptying of the bowels. It persists at night and often requires a sedative to enable the patient to sleep.

In view of the fact that the *entameba histolytica* and the *entameba coli* resemble one another in a general way, it is quite essential to identify the organisms when found in the body and to differentiate between them. Both of these forms are unicellular organisms belonging to the rhizopoda or plasmodioma-tous protozoa that move about and seize their food by means of pseudopodia. They are microscopic in size, slightly variable in size and shape, and they lack a distinct cell wall; however, it is this peculiarity which permits the projections and retractions of the cellular protoplasm to form the pseudopodia (Rivas). These organisms appear to consist of a nucleus, cytoplasm and a variable number of granules and vacuoles which may contain foreign substances. The *entameba histolytica* measures from twenty to fifty microns in length. Its cytoplasm is differentiated into an outer ectoplasm which has a clear hyaline appearance, and the central endoplasm, which is granular and which is usually seen to contain varying amounts of erythrocytes, bacteria and debris. The nucleus is frequently placed eccentrically within the cell and is both smaller and less distinct than that of the *entameba coli*. The *entameba histolytica* is actively motile and the cellular movements are flowing in character. The *entameba coli* is more variable in size, its length varying from eight to fifty microns.

Its cytoplasm is more uniform in structure than that of the *entameba histolytica*. Generally it is uniformly granular, contains very few food or contractile vacuoles and practically never any erythrocytes. The nucleus is centrally placed, large and refractile. This organism is not actively motile and the pseudopods are slow in their motion. We also note that while the *entameba coli* does not take up the neutral red stain, the stain is readily absorbed by the *entameba histolytica*.

It may not be amiss to emphasize the importance of careful methods of collecting the specimens for examination. From time to time various writers have described their technique of collecting specimens of the voided feces in suitable containers which are to be kept at body temperature throughout the entire examination of the specimen. In my practice, the following technique has been found to give good results. On the morning of the examination the patient is given one ounce of a saturated solution of magnesium sulphate to effect an emptying of the bowel. The proctosigmoidoscope is then introduced into the rectum, and, using a long handled platinum loop, a scraping from the ulcer is taken and immediately placed into a warm test-tube containing about 1 c.c. of warm saline solution and immediately examined microscopically.

The treatment of this disease includes prophylactic, dietetic, medicinal and surgical management. Under prophylaxis the patient should be advised that the disease is infectious and that utmost caution must be exercised to prevent its spread to other members of the family. Instructions are given to have underclothes soaked in a carbolic solution before being sent to the laundry. The patient is instructed to cleanse his hands thoroughly after defecation. The precautions, in general, are those which good usage dictates as being applicable in any infectious disease.

Dietetic treatment: As a rule, the patient cooperates freely. The dietetic management aims at a minimum residue diet, but one which supplies sufficient food for the patient.

Medicinal treatment forms an essential part of the proper control of this disease. Opium may be given in small doses to relieve pain, hyoscyamus or belladonna suppositories will sometimes relieve tenesmus. Ipecac has

been recommended by some writers and quinine by others, although, in the opinion of the writer, their curative properties have been over-estimated. Emetin hydrochloride remains today the most valuable medicinal agent at our disposal in the acute cases, administered intravenously, one grain daily for one week and after an interval of one week to be repeated for a similar period. Irrigations of the colon have been found useful in relieving the bowel of excess fecal matter; also of local antiseptic treatment. Hanes has recommended the use of coal oil in the rectum. In this procedure the patient is placed in the knee chest position and the proctosigmoidoscope introduced into the rectum; about one quart of coal oil is poured through the proctosigmoidoscope, after which the patient is permitted to relax on a couch, but is instructed to retain the oil from one-half to one hour, when it may be expelled. Other irrigating fluid are sometimes used, such as 1-1000 solution of formalin in a ten per cent solution of boric acid; also a 1-500 solution of silver nitrate or a five per cent solution of warm ichthyol. These solutions are introduced into the rectum in the same manner as the coal oil and the patient permitted to relax on a couch and retain the solution from one-half to one hour.

In cases where the disease has been of long duration and medical treatment fails to accomplish the desired results, appendicostomy is indicated. The patient is prepared in the usual manner for an abdominal operation, and the abdomen is opened (McBurney's incision is preferred), the appendix is located and the appendical artery identified, the branch that supplies the distal portion of the appendix is ligated. It is important to observe these precautions as this branch anastomoses with the appendical branch of the cecal artery and furnishes a good blood supply to the root of the appendix. The meso-appendix is stripped off and any bleeding parts ligated. The cecum is sutured to the peritoneum after which the fascia is closed by means of an interrupted suture, care being taken not to suture it too snugly around the appendix. The appendix is sutured to the skin by two lateral sutures. On the third day subsequent to the operation, the appendix is opened by removing that portion above the

level of the skin. A catheter is inserted into the stump of the appendix and the entire colon irrigated twice daily for the first three days with a pint of normal saline warmed to seventy degrees Fahrenheit. Gradually the quantity is increased until a quart is reached, using a 1-1,000 formalin in a ten per cent boric acid solution. Coal oil is used in the same manner. The patient is kept in the hospital as a rule for two weeks; afterwards he is permitted to return to his home under very rigid supervision. He is given instruction in the manner of irrigation and is required to irrigate twice a day with the solutions mentioned. These irrigations are continued for a variable period, depending upon his progress, but as a rule they are maintained for about six months. The patient is then returned to the hospital, the wound is reopened and appendectomy performed in the usual manner. This surgical procedure has given the most satisfactory results.

Case Reports

Mr. J. L.; aged 48, weight 134 pounds, height 5 ft. 11½ inches, came to the office March 20, 1924, complaining of frequent bowel movements with severe pain on defecation and general malaise. His family history indicated he was born in Indiana and moved to Colorado when ten years old and has lived in the state ever since excepting the two years 1899 and 1900 when he was in the U. S. army—one year of that time was spent in the Philippine Islands. He had no illness of any consequence until 1904, when he began to have diarrhea, at which time he consulted a physician, was under the physician's care for several months and apparently made a good recovery. In 1908 he had a return of the old symptoms with as many as ten evacuations a day and was treated by a physician with some degree of success; however, he had never been entirely free from diarrhea since 1908. At the time he came to my office he was having thirty evacuations a day and suffering constant pain; he was greatly emaciated and had lost forty pounds in weight the previous year; he was having night sweats, chills and fever, and his complexion was of a dirty yellow color with pronounced anemia. Nausea and vomiting were quite frequent, with badly impaired appetite. On physical examination the patient was seen to be a mentally depressed, listless, poorly-nourished man weighing approximately one hundred and thirty pounds. When he walked into the office he appeared to be suffering considerable pain. Examination of the head, neck, chest and abdomen negative. Examination of the anus revealed skin tags which were inflamed and the anal canal was ulcerated. Sigmoidoscopic examination showed the rectum and sigmoid inflamed and ulcerated. There was a large amount of blood, pus, and mucus within the bowel. The ulcers were variable in size, irregular in shape, single, and appeared to extend in the direction of the circular muscular fibers, assuming an elongated, or linear rather than an oval outline. They appeared to undermine the mucosa. Scrapings

from the ulcers in the manner described showed *entameba histolytica*. The Wassermann was negative, as was the von Pirquet. In the urine there was albumin, no sugar; some granular casts were present. Diagnosis: Ulcerative colitis caused by *entameba histolytica*.

Mr. R. B. W., aged 33, weight 165, salesman by occupation, was referred to me December, 1924, complaining of frequent bowel movements and pain on defecation. His family history indicated he was born in Colorado. He had served in the United States army during the World War, was in France with the troops for sixteen months. He had had the usual diseases of childhood, scarlet fever, measles, whooping cough and mumps. He had no other illness of any consequence until August 1, 1924, when he began to have diarrhea. On August 3, 1924, he consulted his family physician, who treated him. At the time he came to my office he was having from twelve to twenty evacuations a day and was having considerable pain in the rectum and perineum. He had lost ten pounds in weight in the previous three months and was having night sweats. He complained of indigestion and his appetite was impaired. On physical examination the patient was seen to be an energetic well-nourished young man, weighing approximately one hundred and seventy pounds. He did not appear to be ill. Examination of head, neck, chest and abdomen revealed nothing of importance. However, examination of the anus showed it to be inflamed. Proctosigmoidoscopic examination revealed the rectum and sigmoid ulcerated and inflamed. There was a large amount of blood, pus and mucus within the bowel. The ulcers are variable in size, number, and location. In shape, they are irregular. They are single and raised above the mucosa. Scrapings from the ulcers in the manner described showed *entameba histolytica*. The Wassermann was negative, as was the von Pirquet. The urine was free from sugar, albumen and casts. Diagnosis: Ulcerative colitis caused by *entameba histolytica*.

Mr. A., aged 24, farmer by occupation, was referred to me July 1, 1924, complaining of frequent bowel movements, pain on defecation and general malaise. His family history indicated that he was born in Colorado and had never been out of the state. He had had the usual illness of childhood such as scarlet fever, mumps, chicken pox and measles. He had no other illness of any consequence until November 2, 1923, when he began to have diarrhea. On November 10 he consulted a physician and was told he had chronic diarrhea, and was treated for chronic diarrhea up to the time he was referred to me, without any appreciable benefit. At the time he came to my office he was having twenty evacuations in twenty-four hours and suffering constant pain, and had lost twenty pounds in weight in the previous six months. He was having frequent night sweats, chills and fever, and his complexion was slightly yellow, with pronounced anemia. He felt quite weak and complained of indigestion with a badly impaired appetite. On physical examination the patient was seen to be a rather depressed, listless, poorly nourished young man, weighing approximately one hundred and twenty-six pounds. When he walked into the office he appeared to be in pain. Examination of his head, neck, chest and abdomen revealed nothing of importance; however, examination of the anus showed it to be inflamed. Proctosigmoidoscopic examination revealed the rectum and sigmoid inflamed and ulcerated. There was a large amount of blood, pus and mucus within the bowel. The ulcers are variable in size, number and location, and covered

with a white or dirty gray pellicles. In shape they are irregular. They are single and raised above the mucosa. Scrapings from the ulcers in the manner described showed *entameba histolytica*. The Wassermann was negative as was the von Pirquet. In the urine there was a trace of albumin, but no sugar; no casts were present. Diagnosis: Ulcerative colitis caused by *entameba histolytica*.

Mr. J. E., aged 44, auditor by occupation, came to the office January 2, 1924, complaining of frequent bowel movements, pain on defecation and general malaise. His family history indicated that he was born in Colorado and has never been out of the state. He had had no illness of any consequence until August, 1921, when he began to have diarrhea. In September, 1921, he visited a surgeon, who advised and performed an appendectomy, which, however, gave him no relief. He was treated at various times by different physicians for diarrhea, but received only temporary relief. At the time he consulted me he was having thirty evacuations a day and suffering constant pain, was greatly emaciated and had lost sixty pounds in the previous two years; he felt quite weak and complained of indigestion and fermentation. He was having night sweats, chills and fever, and his complexion was of a dirty yellow color. There was pronounced anemia. Nausea and vomiting were quite frequent with badly impaired appetite. On physical examination the patient was seen to be a rather timid, listless, poorly nourished man, weighing approximately one hundred and forty pounds; when he walked into the office he appeared to be in distress. Examination of his head, neck, chest and abdomen revealed nothing of importance. However, examination of the anus revealed skin tags which were irritated and inflamed. The anal canal was also inflamed. Proctosigmoidoscopic examination showed the rectum and sigmoid ulcerated. There was a large amount of blood, pus, and mucus within the bowel. The ulcers were variable in size; in shape they were irregular, showing a tendency to extend in the direction of the circular muscular fibers, thus assuming an elongated, or linear, rather than an oval outline. They appeared to undermine the mucosa. Scrapings from the ulcers in the manner described showed *entameba histolytica*. The Wassermann was negative, as was the von Pirquet. In the urine there was a trace of albumin, but no sugar; however, some granular casts were present. Diagnosis: Ulcerative colitis caused by *entameba histolytica*.

Summary

(1). Four cases of ulcerative colitis caused by the *entameba histolytica* are reported from the state of Colorado within one year, although this infection is generally considered of rare occurrence in these areas.

(2). Two of these patients have never been out of the state of Colorado. One served in the United States army in France and the other was in the Philippine Islands twenty-five years ago.

(3.) Of these four patients, two were treated by medical procedure as outlined above, and the other two by both medical and surgical procedure.

(4.) Cures were obtained in all of the patients. In the acute cases the medical management as a rule is sufficient; but in the chronic cases the surgical procedure gives the best results.

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Mexico will soon establish a Federal Children's Bureau with local branches throughout the country.

There were 363,063 cases of venereal disease reported in the United States in 1924.

Egyptian medical quacks of 1600 B. C. claimed to "rejuvenate" old men.

One minute after garlic is eaten by a cow the flavor is present in the milk.

India is to celebrate its second National Baby Week in 1925.

Wassermann was born in 1866 at Bamberg, Bavaria.

The year 1924 was the healthiest year ever known in the United States and Canada.

The United States has 52,000 retail drug stores.

The per capita consumption of milk increased 12 percent in the United States from 1913 to 1923.

Special paint which will not reflect light is being used on night-flying postal airplanes to protect pilots from the glare of searchlights fixed to the wings.

Nearly two hundred suggested methods of controlling the cotton boll weevil have been tested by the U. S. Department of Agriculture during the past year.

A generator capable of producing a continuous current of 500,000 volts which was recently demonstrated in Paris is to be used in research work on cancer.

PERSISTENT POSTERIOR POSITION*

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In spite of the fact that the literature is replete with papers on persistent posterior position of the occiput, I feel that I need not apologize for again bringing it to your attention, as there is probably no one factor with which the obstetrician has to deal that is of greater moment, or one that is more often overlooked. The morbidity, to say nothing of the mortality, of the mother and babe is most appalling. Not only does the presence of this form of dystocia become a menace to the inexperienced and unskillful, but it frequently occasions the greatest concern for the specialist and taxes his skill and judgment to the utmost. It is estimated by various observers that the posterior position occurs in from ten to twenty per cent of all cases, the difference being largely due to the fact that it is so infrequently diagnosed. Many of you can recall cases in which, after the first confinement, the patient was told that she would die if she ever became pregnant again, simply because a persistent posterior position was not recognized, resulting in the death of the foetus and mutilation of the maternal soft parts. I have seen, and so have you, most of these women who have had the courage to face the ordeal the second time go through a surprisingly short and easy labor. I believe the more careful we are in examining our patients, the more frequently will we find the occiput posterior. Fortunately for us and the patient the most of them will rotate anteriorly and thus cause no trouble beyond a possible prolongation of labor, the length of which will depend on other conditions such as the force and frequency of uterine contractions, the resistance of the soft parts, etc. The cause of the dystocia in posterior position is elementary obstetrics and on account of limited time will not be included. We will stress only two points—diagnosis and treatment.

Diagnosis—As intimated above, I believe the more carefully we examine our patients,

the more frequently we will find the occiput posterior. We should suspect posterior position in every case where labor progresses slowly and the cervix does not dilate readily and lies high and posteriorly, the back of the foetus well down to either side, the fetal heart murmurs low in either flank, fetal extremities felt anteriorly near or above the umbilicus and the membranes ruptured early. Having suspected it, due to the presence of some or all of these symptoms, we can determine it definitely by vaginal examination after the cervix has dilated sufficiently and before the formation of a large caput succedaneum. The large anterior fontanel will be found under the symphysis or slightly to one or the other sides, depending on the position of the occiput. The small posterior fontanel will be opposite the anterior and very difficult to locate. If on account of a large caput succedaneum or lack of room in a primipara or any other reason, we can not be sure, the patient should be anesthetized and then, by inserting the hand in the vagina with fingers passed round the head, locate the anterior ear, the free border of which points toward the occiput.

Treatment—Having satisfied ourselves that we are dealing with a posterior position, the treatment resolves itself into two stages. First, expectant. While remembering that a large majority will rotate as labor progresses and be delivered in a L. O. A., we must consider every case as a potential persistent posterior position and use every means at our command to assist in bringing about this happy ending. We can do much by having the mother lie on the opposite side and thus encourage anterior rotation. We must conserve her strength and morale by rest, suitable doses of drugs, more especially morphine, gr. 1-6 to 1-4, scopolamin, gr. 1-100 to 1-400, atropine, gr. 1-300, or bromides and chloral as indicated. Second, interference. The time when it is apparent that something must be done depends on the condition of the patient and the foetus, and one must rely on his own judgment and resources to determine when and

*Read before the Denver Gynecological and Obstetrical Society of the Woman's Hospital.

what is to be done. There is no one method that is suitable in every case, and we must choose the one that will help us out with as little risk as possible to both mother and child. I will point out some methods that are available and mention their usual indication. That there is nothing new, or at least generally accepted, is evidenced by the fact that in several text books on obstetrics I found no change in the wording, cuts or photographs between 1913 and 1924. Permit me, at this time, to make a plea for rational, intelligent interference before the mother is exhausted and the foetus on the verge of dying. Too often consultation is asked for when the chances of the successful termination of labor are greatly diminished. The old adage, "let nature take its course," is very good, but has no place in modern obstetrical practice. Some advise the obstetrician to go and play a game of golf while his patient struggles on in hard throes of labor, trying to convert a posterior into an anterior position. Surely she is entitled to more consideration.

Let us now take up the various means at our disposal to aid in successfully and quickly terminating labor.

If the head be at the inlet with a dilated or dilatable cervix, a satisfactory method to terminate labor is to anesthetize fully, iron out the perineum, do a version, and deliver as a breech. This procedure is comparatively easy, if one is skilled in doing versions and the water has not drained away.

Very often by internal manipulations with the hand the occiput can be directed anteriorly, at the same time pressing the forehead down. I have used this method in multiparas many times with satisfaction. The same thing has been accomplished with one blade of the forceps. A special one blade forcep was designed by Russel a few years ago, but I confess that I was never able to use it satisfactorily. The most common and altogether gratifying results, particularly in the more difficult cases, are obtained by the judicious use of forceps. Owing to the tendency of the head to resume its posterior position, the forceps must be applied even when the head can be rotated with the hand in the vagina. Dr. De Lee rotates either with the hand or forceps, then grasps the vertex with a tenaculum,

holding it in position until the head engages or the forceps is reapplied. This I have never done although I can see its advantages in suitable cases.

Personally, I prefer the method of Siedes of New York, which he described a little over a year ago. He speaks of it as "the two forceps manoeuvre for persistent posterior position". It consists briefly in applying the forceps with the blades toward the forehead, then by elevating to the opposite position, the head is fully flexed. The forceps are then carried first down and out, then down and in, describing the arc of a circle. The left blade is then removed and replaced with a blade from a second pair of forceps, the right is removed and replaced by the other blade of the second pair. In this way the remaining blade acts as a splint to prevent the head from rotating to its former position, a condition which formerly gave me a great deal of annoyance. In multipara it is often possible to deliver with forceps while the occiput is posterior. Not infrequently the real condition is unsuspected until the face appears beneath the pubic arch.

Pituitrin should be used very cautiously in posterior position for obvious reasons. However, where it is desirable to increase the force and frequency of the pains, it is invaluable. It is rarely necessary to resort to Caesarean section in this condition; however, it is preferable to a mutilating forceps operation and might be the method of choice when the vitality of mother and child is very low, being done under local anesthesia, if a general anesthetic increases the hazard.

To summarize briefly: 1. "Persistent posterior position" is the most frequent cause of prolonged and difficult labor. 2. It is often overlooked, leaving a high rate of morbidity and mortality. 3. An early and accurate diagnosis of position should be made in every lying-in case. 4. Choice of methods for relief depends largely on the skill and judgment of the accoucher.

Addenda.—Since this paper was written and read, Dr. Samuel J. Scadron of New York has described a new technique for the use of the Kjelland forceps; his article appears in the *Journal of Surgery, Gynecology, and Obstetrics* for May, 1925, page 697.

ALLERGIC EPILEPSY

An Unusual Familial Type

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Allergy, according to the present concept, is a condition of altered susceptibility to an antigen wherein the individual reacts differently to a second application than to the first. It refers to naturally acquired sensitiveness as opposed to anaphylaxis. Formerly the protein bodies were credited with the sole power of producing allergic phenomena, but the findings of many investigators have indicted representatives of almost all classes of physical agents as well as of the chemical groups.

In spite of this ever increasing number of known factors, types of proved allergic reactions have remained few in number. The type of reaction is of little or no value in determining the casual agent. As the only possible exception may be cited the fact that purely local reactions usually indicate an antigen acting in minute amounts usually by way of the respiratory tract, such as pollen hay-fever or dander asthma. On the other hand general reactions, as convulsions or serum sickness, probably require a larger though still a minute amount which is presented usually by way of the digestive apparatus, large areas of the integument, or by inoculation. There are many patients presenting obscure morbid conditions which are treated symptomatically that are in all probability allergic in nature.

Epilepsy, grand mal, has a fairly definite syndrome, but is, in most cases, of obscure etiology. The literature is filled with conjectures concerning the cause, theories formulated by various investigators throughout the history of medicine. Some have offered proof of varying value in support of their theses. The multiplicity of casual agents indicates the probability of many factors.

Case 1—A married white woman, aged 34. The only essential point in the family history was that the mother and the only sister suffer with severe periodic headaches. The patient has three children, and has had numerous miscarriages which have occurred during attacks. Otherwise the past history is negative.

From the time the patient reached puberty she has been subject to severe convulsions followed by violent headaches; mild mania and

confusion lasting fifteen minutes to three hours; and occasionally urinary incontinence. These attacks are always followed by a large output of urine. At no time was there frothing and the patient never bit her tongue or lips. These spells varied from two daily to two a week, averaging five a week. The onset was usually in the evening, occasionally at night in sleep. There was no aura. There had been no change in their character from the start, as far as could be determined. There was no menstrual influence. Treatment for epilepsy had no effect other than to diminish the intensity a bit. Refraction, and drainage or removal of possibly infected foci were without result. Change of climate had no influence.

The general physical examination showed an apparently normal anatomical structure. She was five feet and two inches tall, weighing 127 pounds. At no time was urticaria, dermatographia, eczema, asthma, or edema present.

There was a leukocytosis of 10,200 to 12,000 with a polymorphonuclear count averaging 75.4 per cent when the sample was taken during an attack. At other times the blood counts were normal. Blood chemistry was normal at all times whether the blood was drawn before, during or immediately after attacks. X-ray studies revealed a slight amount of enteroptosis with a slight deficiency in motility during the quiescent periods. Between attacks the neuro-muscular electric reactions were normal; not tried during an attack. Wassermann negative.

Urinalysis, the first four times, indicated a normal qualitative excretion. The fifth examination showed a trace of albumin, and was followed in about four hours by a typical convulsion. Hourly samples were then examined with the uniform result that beginning six to eight hours before convulsions a gradually increasing amount of albumin was present. Samples after convulsions showed amounts of albumin that decreased at the same relative rate. There was no abnormal sediment at any time. The headache gradually diminished with the disappearance of the

albumin. Kidney function tests were negative.

Protein skin tests were tried with the too frequent result, i. e., positive reactions to about twenty substances in three groups. However, more severe reactions were obtained with the animal proteins.

The patient was directed to eliminate meat from her diet for four weeks. During that time she was free from convulsions and headache. She was then allowed a small piece of well cooked steak at the mid-day meal, her heaviest meal usually. That evening she had a typical attack. Again eliminating the meat she had an interval of good health. Subcutaneous injection of four drops of sterile beef broth brought about an attack of such intensity that heroic treatment was necessary. It was finally controlled by epinephrin. The result was so severe that further tests with other meat extracts was abandoned, and attempts to desensitize her were refused.

For the past year she has been on a diet free of beef, mutton, and pork in all forms. Fish and fowl are harmless. Except for a very few times when she has yielded to temptation and has eaten of the forbidden meats, she has been free of attacks.

Case 2—After control of the above attacks the patient brought in her oldest daughter, aged 17. The daughter suffered from attacks somewhat similar to those of the mother. These spells were much milder, of shorter duration, and more infrequent. The attacks had come on at puberty, about the age of 14. Also, instead of being marked by convulsions, the onset is syncope accompanied by slight frothing at the mouth occasionally. They are always followed by headache and lassitude. She says that occasionally she can tell when an attack is coming on, but could describe no definite aura. This syndrome had led to a diagnosis of grand mal. Her reaction to red meats is similar to that of the mother, abstinence leading to freedom from attacks. The daughter, too, has similar laboratory and negative physical findings.

Comment

As has been stated many times, a constitution favoring hypersensitiveness may be hereditary, a positive family history being obtained in from 35 to 50 per cent of cases.

Nursing infants may be sensitive to foods that they have never eaten but which are or have been part of the diet of the mother. Also there has been offered reasonable proof of inherited anaphylaxis from several laboratories, and anaphylaxis is artificially produced allergy. The majority of observers believe that the resistance of the very young to many diseases is due to inherited antibodies. At this time it cannot be affirmed that the above cases are examples of inherited allergy. The time of onset is against that. It is reasonable to suppose that the daughter has inherited a constitution predisposed to sensitization. It is also reasonable to consider that both patients are victims of allergic reactions with peculiar manifestations, the reactions being dependent on some inherited nervous system defect analogous to epilepsy, the homologous exciting cause being coincidental.

Patients may be sensitive to digestion products common to a number of foods. It is possible in the above cases that faulty metabolism may lead to toxic products that, when absorbed, in turn lead to the attacks. Or, by primarily affecting the kidneys it may lead to a temporarily deficient kidney function of obscure type and retention of normal metabolic products having the same effect. It seems that allergy is the term to use here. The kidney function tests and usual blood chemistry are negative. Skin tests are positive. Fish, fowl, and all vegetable proteins of an ordinary diet are innocuous. Avoidance of certain articles of diet results in good health, and small quantities injected lead to dire results. The convulsions and urinary findings indicate the organs most affected.

Whether or not the above condition is related to or a variety of idiopathic epilepsy is not determined. Many have claimed that epilepsy is due to toxic agents of digestive origin. "... Toxic conditions arising from the intestinal tract or due to defective elimination through the kidneys may act as the exciting causes". Certain investigators consider these toxic agents to be proteoses which are absorbed unchanged, which by causing local cerebral vaso-constriction with resulting local acidosis, lead to the epileptic convulsion. Numerous observers have traced the seizure to food excesses.

It is well known that the effect of an antigen may be local, may affect a single organ or part of an organ to the exclusion of all else, as witness asthma, certain urticarias, or the allergic bladder syndromes. It is quite possible that local vasoconstriction in the brain, an allergic response in the above patients, is the immediate cause of the attacks. It is certain that the attacks of the daughter resemble grand mal, though those of the mother have remained unchanged from the start and are decidedly not epileptic in appearance. In other words, there is here an inherited predisposition to hypersensitiveness with an inherited but considerably modified neuro-muscular defect in the daughter, the modification tending toward idiopathic epilepsy in type of reaction. "It" (epilepsy) "is due to the action of chronic intoxications and chronic diseases of the germ plasm"². This in turn leads to the possibility that some cases of epilepsy may be due to germ plasm changes induced

by allergic agents in the line of descent. Other toxins affect the germ plasm, alcohol having been particularly studied along this line. The powerful poisons generated by the hypersensitive individual from his particular antigen could have the same effect.

Conclusions

1. Two cases are presented illustrating what is apparently an inheritable constitution favoring allergic sensitization and an inheritable neuro-muscular defect.
2. The reactions are allergic in nature.
3. The antigen is a digestive product common to several meats.
4. The neuro-muscular defect is modified in the second generation, the modification tending to bring about reactions closely resembling grand mal.

References

- ¹Church and Peterson; Nervous and Mental Diseases; Ninth Edition; page 649.
- ²Vorkastner, W.; Diseases of the Nervous System (Modern Clinical Medicine), page 1032.

REMOVAL OF SPLEEN

R. B. PORTER, M.D.,
GLENWOOD SPRINGS

I am reporting this case as it may be of interest. This patient came to the office for severe headache and dorsal and sacral pain, April 2, 1925. Mrs. C. L. P., occupation housewife, aged 28, married, two healthy children, no miscarriages.

Symptoms—Headache, backache, dorsal and sacral.

History—Family, negative. Youngest child ten months old, normal labors. Had typhoid fever when seven years of age. Menstrual history negative except was always irregular. Last menstruation was March 1, 1925. December, 1924, there months ago, fell, striking buttock. Could not walk without severe pain for one month in region of coccyx. Any exertion caused excessive perspiration. Feels hot all the time. August, 1924, and November, 1924, had severe attacks of pain in epigastrium and bloating, pain lasted one and one-half hours. Last pain was on Christmas day, lasted three or four hours. Soda and cream of tartar finally relieved. Pain stopped suddenly in each instance. Past three weeks

been having severe headache, dorsal, lumbar and sacral pain. Bowels normal. Has sense of weight and dragging in pelvis when standing. Said she could feel a lump in the left sub-costal region. Good appetite.

Physical examination. Throat and teeth normal. Heart normal. Lungs negative. Tumor under left costal arch extending into and fills the left flank, feels like spleen.

Bimanual. Perineum lacerated, both tubes slightly tender, uterus normal. Urine negative. Blood pressure 120-90, hemoglobin 80, white count 8,300, red count 3,930,000.

Diagnosis. Splenomegalia (?).

Operation April 17, 1925. Long left rectus incision, very large bluish tumor exposed, which was the spleen. Gallbladder and stomach normal. Very few adhesions to the diaphragm which were easily broken. The spleen was delivered, pedicle clamped with two heavy clamps. Pedicle was ligated in segments, each segment ligated twice. Very long appendix removed. Tubes normal. Abdomen closed without drainage. Very little shock follow-

ing operation. Recovery uneventful. Sat up on the seventeenth day. On the eighteenth day developed a severe pain in what seemed to be the upper left abdomen, had a temperature of 104. There was a slight tenderness over the upper left quadrant. Lungs negative. The next day developed cough and rales in left base. This all cleared up in four days but had a slight pleurisy for nearly a week. This explains the sudden rise in temperature. From this on made an uneventful recovery, left the hospital at the end of four weeks. On May 11, 1925, the blood findings were as follows: white count 22,600; red count 5,400,000; hemoglobin 70. On May 29, 1925, white count 6,500; red count 4,330,000; hemoglobin 75. The spleen weighed 1,452.8 gms.

The spleen was sent to Drs. Hillkowitz and Gauss, Denver, for a pathological examination with the following report: Gross appearance,—Specimen consists of a spleen measuring 19 cm. in length and 13 cm. in width and at its lower pole is an elliptical appendage measuring $7 \times 5\frac{1}{2}$ cm. The external capsule is smooth. The organ seems to be uniformly enlarged. It is of a dark bluish color. Cross section reveals a uniform dark red pulp, the trabeculae not being prominent nor are the Malpighian bodies visible. Microscopic examination. Sections reveal the endothelial cells of the lymph sinuses of the pulp with relatively diminished lymphocytes. The lymph nodes are few in number and quite small. There is the usual number of phagocytes with blood pigment. Very few leucocytes are in evidence. Remarks. The histologic characters are that of a splenomegaly. Tumors and leukemia may be excluded, also Gaucher's type of splenomegaly and Hodgkin's disease. As the case is not consequent on an infectious disease, the only pathologic entity to be taken into consideration is that of Banti's disease. Diagnosis. Splenomegaly.

DEMONSTRATING THE PULSE

"That the pulses of the arteries are due to the impulses of the blood from the left ventricle, may be illustrated by blowing into a glove, when the whole of the fingers will be found to become distended at one and the same time, and in their tension to bear some resemblance to the pulse."—William Harvey.

SYSTOLE

Keep guid eompany, an' ye'll be eounted ane o' them.—Seotch Proverb.

Loek yer door and keep yer neebors honest.—Seotch Proverb.

The deil's a busy bishop in his ain diocese.—Seotch Proverb.

Buy what you dinna want, an you'l' sell what you canna spare.—Seotch Proverb.

Friends are like fiddle-strings, they mauna be serewed ower-tight.—Seotch Proverb.

He that lends money to a friend has a double loss.—Seotch Proverb.

More people die of eating and drinking than of hunger and thirst.—Yugoslav Proverb.

Boast to a stranger, eomplain only to your friends.—Yugoslav Proverb.

Man is learning all his life and yet he dies in ignorance.—Yugoslav Proverb.

If you do not feed the eat, you must feed the mice.—Yugoslav Proverb.

It is easy to catch snakes with someone else's hand.—Yugoslav Proverb.

Woe to the legs under a foolish head.—Yugoslav Proverb.

The more you think of dying the better you will live.—Italian Proverb.

There is no fool like a learned fool.—Italian Proverb.

He who gives fair words, feeds you with an empty spoon.—Italian Proverb.

The best way to get praise is to die.—Italian Proverb.

DIASTOLE

The automobile trade announces that there will be only four pedestrians to each car in 1928, instead of six to one as at present. We hope that fair means are intended.

There were annoying consequences last week when a Christian Science practitioner gave an absent treatment and got the wrong address. Mrs. Brown died and Mr. Smith across the way found it impossible to drown a couple of kittens.

"Why, doctor, my eyes are so weak that when I was on the fire department I had to wear a celluloid eye-shade."

"It's a balmy day," said the undertaker, looking out of the window.

"Yes, very embalmly," said his assistant, wistfully.

Dr. Robert S. Carroll says that a man should walk four miles an hour, and a woman three. We've seen lots of husbands and wives walking at these respective rates.

Undertaker—Do you wish a silk-lined coffin for your late husband,

Thoughtful Widow—Have you any lined with asbestos?

Doctor—Mr. Wodleigh, you are getting too fat. You should take the Daily Dozen.

Wodleigh—I take 'em every morning, with eight slices of bacon.

Pathological Lying. Doctor: Have you had a Wassermann test?

Patient: Yes, doctor. It was made in Dr. Wassermann's own laboratory.

Doctor: Have you had the Kuhlman test?

Patient: Indeed, yes. It was made by Dr. Kuhlman's first assistant.

Doctor: Have you had the cobra venom test?

Patient: Yes, sir. Dr. Cobra did the test himself.

NEW BOOKS

HOW TO USE THE MICROSCOPE. By the Rev. Charles A. Hall. 12mo. London: A. & C. Flack. A guide for the novice.

CORRECTING SPEECH DEFECTS AND FOREIGN ACCENT. By Grace A. McCullough and Agnes V. Birmingham. 12mo. New York: Charles Scribner's Sons. 88 cents. Methods of improving the normal speech of the child and in correcting actually defective speech, be it stammering, stuttering, lisping, foreign accent or defective phonation.

THE BASIS OF HEALTH. By Philip Rice. 12mo. New York, N. Y.: Bancroft Lecture Bureau. Principles of the science of health for parents and teachers.

THE CONQUEST OF CANCER. By H. W. S. Wright. 12mo. New York: E. P. Dutton & Co. \$1. The problem of conquering cancer explained in non-technical language.

THE CHILD, THE CLINIC AND THE COURT. 12mo. New York: New Republic, Inc.

CONCERNING EVOLUTION. By J. Arthur Thomson. 12mo. New Haven, Conn.: Yale University Press. \$2.50. The Dwight H. Terry lectures delivered at Yale University, 1924.

PUBLIC HEALTH IN THEORY AND PRACTICE. By William Henry Welch. 12mo. New Haven, Conn.: Yale University Press. \$1. A historical review. The second William Thompson Sedgwick Memorial lecture.

SEX AND EXERCISE. By Ettie A. Rout. 12mo. London: William Heinemann. A study of the sex function in women and its relation to exercise.

CANCER AND THE PUBLIC. By Charles F. Childe. 8vo. New York: E. P. Dutton & Co. \$4.25. The educational aspect of the cancer problem.

THE TAXONOMY OF POISON IVY. By James B. McNair. Pamphlet. Chicago, Ill.: Field Museum of Natural History. With a note on the origin of the generic name.

THE BRAINS OF THE SOUTH AMERICAN MARSUPIALS CAENOLESTES AND OROLESTES. By Jeannette Brown Obenchain. Pamphlet. Chicago, Ill.: Field Museum of Natural History. An anatomical study of two small South American animals.

THE MYSTERIOUS GLANDS. By Herman H. Rubin. 12mo. Philadelphia, Pa.: Milo Publishing Company. How your glands control your mental and physical development and moral welfare.

STAY YOUNG. By Raymond Leslie Goldman. 12mo. New York: The Macmillan Company. \$2. Eating, sleeping, exercising and living for health.

SIMPLIFIED NURSING. By Florence Dakin. 12mo. Philadelphia, Pa.: J. B. Lippincott Co. \$3. The fundamentals of nursing in three sections; routine work, general nursing methods and special nursing methods.

PREVENTION AND TREATMENT OF MALARIA. By W. E. Deeks. Pamphlet. London: John Bale, Sons & Danielsson, Ltd. A pamphlet by the general manager of the Medical Department of the United Fruit Company.

MAGAZINE ARTICLES

WHEN YOUR BOY GOES TO COLLEGE. By W. R. P. Emerson. Woman's Home Companion, September.

WHY THE SOUTH IS ANTI-EVOLUTION. By Edwin Mims. World's Work, September.

WHAT IS EVOLUTION? By E. E. Free. Forum, September.

WHAT IS PROGRESS IN NUTRITION? By Mary Swartz Rose. Journal of Home Economics, August.

GEORGE DECHANEL, LITERARY PHYSICIAN. By Andre Therive. Living Age, September 12.

SOME OF THE EFFECTS OF ULTRA-VIOLET LIGHT ON LIVING THINGS. By C. C. Little. McClure's, August.

EVOLUTION AND RELIGION. By Harry Emerson Fosdick. Ladies' Home Journal, September.

LET'S NOT GROW OLD. McCall's Magazine, October.

THE INFERIORITY PROBLEM IN CHILDREN. By George K. Pratt, M.D. Modern Priscilla, October.

PROHIBITION AND THE MEDICAL FRATERNITY. By Howard A. Kelly, M.D. North American Review, September-November.

CANCER STILL UNCONQUERED BY SCIENCE. By Watson Davis. Current History, September.

IT CAN BE CURED. By Harriet Wilde. Designer, October.

A LETTER TO THE PRESIDENT (Re the Pure Food Law). By Harvey W. Wiley, M.D. Good Housekeeping, September.

HELP YOUR CHILD FORM GOOD HABITS. By George K. Pratt, M.D. Designer, October.

THE SIGNIFICANCE OF THE SCOPES TRIAL. Current History, September.

THE OPIUM QUESTION. Contemporary Review, August.

THE CHILD WHO WON'T EAT. By Richard N. Smith. Delineator, October.

DR. EMANUEL STUVER

Dr. Emanuel Stuver, who died recently at Fort Collins, was born in 1856, and received the degree of Doctor of Medicine at the Ohio Medical College in 1880. He came West soon after, settling at Rawlins, Wyoming, where for years he was connected with the Surgical Staff of the U. P. R. R.

In 1895 he moved to Fort Collins, Colorado, where he has practiced since. Soon after this date he attended an International Medical Congress in Europe, of which he always spoke enthusiastically.

Dr. Stuver was a great reader and a prolific writer of Journal literature. He was a good practitioner, and a member of the County and State Societies.

The immediate cause of his death was that disease so often noted in medical obituaries—angina pectoris.

He leaves a widow, three boys and two daughters.

J. N. HALL.

MEDICAL SOCIETIES

COLORADO GENERAL HOSPITAL

In keeping with the past reports which have been made on the progress of this institution, the attendance has kept at much the same level. The past month has shown some increase over the last report, both as to the number of counties and patients. When we recall that the purpose of this hospital is not to offer a haven for the incurable, but to afford the best service possible in the way of diagnosis and treatment to those found to be suffering from some ailment which offers a possibility of a cure or at least amelioration; and that five weeks is considered to be the maximum stay granted, unless extended for very definite reason, the turnover in the hospitalization of the citizens of this state is manifest.

July

Number of counties represented _____ 19
Number of patients received _____ 138

During this month the number discharged from the hospital exceeded the admissions by 21, the excess coming from patients carried over from the previous month. This shows that the average length of time spent in the institution by the patients must be under the maximum time allowed.

The average daily attendance in the Out-Patients Department has dropped to 99, due no doubt to the usual seasonal variations in the number who apply for treatment at this time of the year. It is interesting to note that the Eye Department and Pediatrics Department have an attendance approaching the numbers in Medicine and Surgery. The new Department of Dentistry has had over 100 patients during the month, coming from both the General and Psychopathic hospitals as well as the Out-Patients Department.

COLORADO PSYCHOPATHIC HOSPITAL

The following data obtained from the office of the Director is of particular interest:

July

Number of counties represented _____ 16
Number of patients received _____ 35

While the admittances have not increased, the number of counties availing themselves of the advantages afforded has practically doubled. And during the month the number of discharges, 34, has practically equalled the new cases. This is entirely in keeping with the spirit of the institution.

Dr. Franklin G. Ebaugh, Director, has summarized the work done since the institution opened, to date:

Total admittances _____ 204
Total number of counties _____ 24

Of these patients:

86 have been discharged as improved;
55 have been discharged as unimproved;
9 have been discharged as recovered;
4 have been discharged as not treated.

Dr. Ebaugh states that "we are very conservative regarding statistics and number of patients discharged improved. Their condition is such that they can return to work and support themselves and families. Only 12 patients thus far have been committed to Pueblo from this hospital. Many discharged as unimproved have been here for observation,

and were kept in the hospital for a short period and definite diagnosis and aid in disposing of the case has been given in each of these cases."

E. R. MUGRAGE.

DELTA COUNTY

The Minutes of the Meeting of The Delta County Medical Society for July, 1925:

The Delta County Medical Society, wives and families were the guests of Dr. and Mrs. McConnell of Somerset at the regular monthly meeting on Friday, July 31st. There were sixty-one doctors and guests present—Dr. Hick, president, presiding; Drs. McClanahan, Erich, Aust, Hazlett, Miller, Meyers, Bast, Cleland, Day, C. H. Burgin, J. H. Burgin, Bolton, McArthur, McConnell and Smith, members present; Drs. Effingham and Reed of Missouri and Lawrence Hick of Chicago, visitors present.

Dr. Hick gave a paper on Blood Typing and Indications for Transfusion. Dr. Bolton gave a paper on Cystoscopy in the Treatment of Bladder and Kidney Diseases. General discussion followed.

A vote of thanks by the Society was extended to Dr. and Mrs. McConnell for the evening's entertainment. The next meeting is to be held at Dr. McClanahan's on California Mesa. Papers for next meeting to be assigned later.

HARRY A. SMITH,
Secretary.

NEWS NOTES

Dr. and Mrs. E. W. Perrott of Denver are the parents of a daughter.

Dr. Chesmore Eastlake has removed his office to 340 Metropolitan Building, Denver.

Dr. W. C. Bane has returned to Denver from his European trip.

Dr. Lorenz Frank is recovering from a recent operation.

Dr. James H. Leyda of Denver has returned from abroad.

The Department of Clinical Pathology of the School of Medicine of the University of Colorado wishes to obtain copies of the first, also the second edition of Todd's Clinical Diagnosis. Will any reader possessing either of the above and not using them, communicate with E. R. Mugrage, 4200 E. 9th Ave., Denver, Colo.

The heads of the various departments in the Medical School wish to call to the attention of the physicians and surgeons of the State their need for teaching material. With its present facilities the utmost can be made of such material; it can also be stored for future use and exhibit. Due credit will be given to the donors. Every practitioner of medicine in the State at some time comes in contact with the unusual, be it surgical, parasitic, blood pictures, gross specimens, etc. If the School receives aid such as can easily be given by the medical men at large it will only be a short time until the teaching material available in the Museum will be second to none.

Specimens can be directed to E. R. Mugrage, 4200 E. 9th Ave., Denver, and will be duly acknowledged; also any inquiries as to shipping directions, means of preservation, etc., will be promptly answered.

BOOK REVIEWS

The Healing Gods of Ancient Civilizations. By Walter Addison Jayne, M.D., Emeritus Professor of Gynecology and Abdominal Surgery, University of Colorado; Yale University Press, 1925. Pp. 569. Price, \$5.00.

A retrospect of history shows that medical men have built up not only the major part of their own science and art but have made notable contributions to general science and to literature itself.

In fact, the patient whom we study is like nothing so much as an interrogation mark. Our ability to translate his signs and symptoms depends upon knowledge transmitted to us from others and evolved and confirmed by our own experience. One of the richest sources for the improvement of our mental powers and for the illumination of present obscurities is Medical History. Where does history begin?

Hippocrates was comparatively a modern; he lived less than 2,400 years ago—a small fraction of the antecedent 50,000 years predicated by human remains. The marvelous attainments of the Father of Medicine must have been founded on ages of accumulated knowledge.

If there remains in us a glimmer of the divine curiosity that brought our ancestors up from the Stone Age we must want to know what happened to the human seed while germinating in the soil and sending its shoots into the light.

Dr. Jayne has provided a feast for the curious. This work seems fit company for any library of history and it must everywhere dignify the intellectual estimate of our own region in which it was conceived.

I wish to emphasize the thought there is nothing perfunctory about this book. The idea that led to its writing was itself an inspiration. Its educational value from the standpoint of mere knowledge is great; but most important, it seems to me, is that fine flavor of thought which must appeal to the reader as from between the lines.

There is none who will not value the records in tradition and history of the origin of our cult in the Greek Asklepios and the Roman Aesculapius.

While the ancient *materia medica* appeals indifferently to us, the ancient *mind* must have absorbing interest. Sir Francis Galton, the founder of the Science of Genetics, plausibly argued, as I remember, that in the **Golden Age** of Greece—including the lifetime of Hippocrates,—the average intellectual ability of the Athenians was as far superior to that of the British of the nineteenth century as was the mental capacity of the British to that of the Hottentots who can't count beyond five.

We have nothing on the ancients in an intellectual way. We shall find from Dr. Jayne's work that ancient medical practice was predominantly psycho-therapeutic. It would be a narrow and unscientific deduction that the priest-physicians were either charlatans or hypocrites.

Their power was derived from the very constitution of the human mind. Those were the days of real Fundamentalists and "Scientists" beside which the modern cults seem feeble indeed.

I believe there is no practitioner of medicine—or surgery—whose appreciation of his own tasks will not be enhanced by contemplation of this range of history, nor will he fail to get pleasure in the process.

The work under review is divided into eight chapters—after an introduction which should by no means be neglected by the reader.

The title "Healing Gods" does not exclude the presentation of a fairly full review of ancient medical ideas.

Each chapter treats of a separate region and people. The themes are, respectively, concerned with—Egypt, Babylon and Assyria, the Pagan Semites of the West, Ancient India, Ancient Iran, Ancient Greece, Ancient Rome, Ancient Celts.

Each chapter is divided into two parts, the first of which gives a general survey of the subject. Here is where critical scholarship is demanded of the expositor and literary ability to entertain and instruct the reader. The task is well performed.

The second part of each chapter is devoted to the detailed biographical sketches of the various personages in myth and history.

Without prejudice, Dr. Jayne is to be congratulated for having given the world and his associates a notable addition to the armamentarium of medical culture.

HENRY SEWALL.

Practical Clinical Psychiatry for Students and

Practitioners. By Edward A. Strecker, A.M., M.D., Professor of Nervous and Mental Diseases, Jefferson Medical College, Philadelphia, and Franklin G. Ebaugh, M.D., Professor of Psychiatry, University of Colorado; Director Colorado Psychopathic Hospital. Illustrated. Philadelphia. P. Blakiston's Son and Company. Price \$4.00.

This delightful presentation of the subject of psychiatry is a departure from the conventional text book, and designed to present the mental side of the individual as it may confront the physician either *per se* or in association with somatic disturbances.

The object is well stated in the preface that "It is highly desirable that the medical student, who in a few years will be the practicing physician, and the hospital resident, who is serving his apprenticeship, take the necessary steps to acquire this ability" (to treat not only the physical symptoms of the patient, but also his whims and peculiarities, his personality, his mind, and in fact, the entire patient). "For the family doctor; for the internist; the surgeon, and, in fact, for the specialist in every field of medicine, the psychiatric point of view will be an asset * * *"

Following a brief foreword by Dr. Charles W. Burr, is a concise introduction. Etiology, Diagnosis, Prognosis and Treatment are briefly but clearly considered in the opening chapter. The second chapter is devoted to classification which follows that of the "Statistical Manual" of the National Committee of Mental Hygiene. Methods of Examination is well presented, especially as a guide to students and practitioners who would develop a systematic method of investigation. The Organic Psychoses; Toxic Psychoses and Psychoses with Somatic Diseases; Manic-Depressive Psychoses; Senile and Presenile Psychoses; Dementia Precoc; Paranoia and Paranoid Conditions are discussed from the clinical viewpoint with typical case citations. The psychoneuroses and neuroses are discussed with case records. Constitutional Psychopathic Inferiority is followed by a concluding chapter on

Mental Deficiency. A brief glossary will be of value. A complete index concludes the work.

It is well conceived and should fulfill its purpose as an introductory to the student, a guide for the general practitioner, and of value to all who would attain a better insight into the mental side of the individual as an aid to more effective therapy and ministration.

G. A. MOLEEN.

Diseases of the Chest and the Principles of Physical Diagnosis.

By George William Norris, A.B., M.D., Professor of Clinical Medicine in the University of Pennsylvania; Visiting Physician to the Pennsylvania Hospital, and Henry R. Landis, A.B., M.D., Director of the Clinical and Sociological Department of the Henry Phipps Institute of the University of Pennsylvania; Visiting Physician to the White Haven Sanatorium. With a chapter on the Electrocardiograph in Heart Disease by Edward B. Krumbhaar, Ph.D., M.D. Director of Laboratories of the Philadelphia General Hospital. Third Edition Revised. Philadelphia and London. W. B. Saunders Company, 1924.

The first and subsequent editions of this work have been of such excellence that it was difficult for the reviewer to see the need of a new edition. Careful comparison shows, however, many minor changes in the text accompanied by new illustrations, both substituting for those of former editions and illustrating new points.

Both as a text-book for medical students and as a reference book for the physician this book occupies a unique position.

Clarity of expression coupled with fortunate selection of illustrations makes any edition of this book an addition to any medical library.

C. T. BURNETT.

Personal Hygiene Applied.

By Jesse Feiring Williams, M.D., Professor of Physical Education, Teachers College, Columbia University, New York City. Second edition revised. 12 mo of 414 pages, illustrated. Philadelphia and London. W. B. Saunders Company, 1925. Cloth. \$2.00 net.

The first edition of this book which came out in 1922 was so well received that several reprints were necessary in 1923 and 1924.

This 1925 edition has been revised so as to present the most recent ideas as to goitre, scarlet fever, diabetes, etc.

As the author states, the work is largely intended for the undergraduate student and as a college text book is so used throughout the country. It is, however, of great value to teachers of the subject, to nurses, social workers and others who are spreading the doctrines of personal health and hygiene. In an interesting way it links this personal health and hygiene with the nation's vitality and progress, and daily living with man's natural instincts and his best development.

The order of presentation is a natural one, proceeding from a discussion of health in its various phases to simple hygiene of the different parts of the body.

A helpful summary of each chapter is given in the table of contents.

M. ETHEL V. FRASER.

Colorado Medicine

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GEORGE HARDIN CURFMAN
President Elect, Colorado State Medical Society

EDITORIAL NOTES AND COMMENT

George Hardin Curfman

George Hardin Curfman, president-elect of the Colorado State Medical Society, was born in Maryville, Mo., November 4th, 1877. His preliminary education was received in the public schools of Maryville and at Maryville Seminary. In the fall of 1896 he entered Northwestern University, graduating with honors in the class of 1900 with the degree of Ph.B. He received the degree of Doctor of Medicine *cum laude* from the Northwestern University Medical School in 1905.

While a student in college he was always a leader—a leader not only in scholarship, but in college activities. After graduation he served as interne in the Cook County Hospital, Chicago. In December, 1906, immediately after completing his hospital training, Dr. Curfman came to Salida, Colorado, where he was appointed junior attending surgeon for the Denver and Rio Grande Western Hospital. Soon after this Dr. J. F. Roe, now chief surgeon for the Denver and Rio Grande Western Railroad, moved to Denver, and Dr. Curfman became the senior attending surgeon, a position he holds at the present time.

Dr. Curfman's special work has been surgery. His ability in this specialty has helped to make Salida and the Denver and Rio Grande Western Hospital the surgical center for the entire territory of South Central Colorado. In 1912, he investigated and reported an outbreak of botulism in Chaffee County, which was the first report of this disease to be made in Colorado.

He has always been active in the affairs of the Colorado State Medical Society, being a member of the House of Delegates for the past two years, and alternate delegate to the American Medical Association for the past four years. He attended as delegate the last session of the House of Delegates of the American Medical Association. In 1924 he was President of the Arkansas Valley Medical Society and was the moving spirit

of the meeting of this society at Mt. Princeton. He is a member of the American College of Surgeons and the American Association of Railroad Surgeons.

Dr. Curfman was married June 12th, 1907, to Elsie D. Gelvin of Maitland, Mo. He is the devoted father of four children. Chief among Dr. Curfman's characteristics are loyalty to friend and tenacity of purpose.

J. B. CROUCH.

The Fifty-fifth Session

The fifty-fifth annual session of the Colorado State Medical Society goes into history as one of the most successful meetings the society has ever held. It is a new experience for the State Society to take a municipal auditorium, and to bulge its walls with scientific exhibits and commercial displays. But for the absence of the sportive detail man urging free samples, the affair might have been mistaken for a convention of the American Medical Association.

The attendance at the scientific meeting was good, despite the counter-attractions, and the papers were of the usual excellent quality.

The total registration of members was 333. There were fourteen visitors—three from Colorado, three from Pennsylvania, and one from New York, Illinois, Texas, California, New Mexico, Louisiana, and Kansas.

The secretary's report showed a total membership of 1,042—an increase of 19 in the past twelve months.

The treasurer's accounts showed \$3,854.87 in the general fund and \$3,791.52 in the emergency and publicity fund.

There were four meetings of the house of delegates. The proceedings were direct, with a minimum of lateral motion.

The house appointed a committee to study a model constitution with model by-laws, submitted by the American Medical Association. The house also authorized the Committee on Public Policy to appoint a sub-

committee to assist constituent societies in arranging popular health lectures.

The election of officers resulted as follows:

President-elect, George H. Curfman, Salida.

First vice-president, Edward Delehanty, Denver.

Second vice-president, W. E. Hays, Sterling.

Third vice-president, E. H. Munro, Grand Junction.

Fourth vice-president, L. E. Likes, Lamar.

Delegates to the American Medical Association—senior delegate, L. H. McKinnie, Colorado Springs (re-elected); W. T. Little, Canon City, alternate; junior delegate, C. N. Meader, Denver (hold-over).

Secretary, F. B. Stephenson, Denver (hold-over).

Treasurer, W. A. Sedwick, Denver (hold-over).

Councilor for District 1, Ella A. Mead, Greeley.

Member Publications Committee (succeeding G. A. Moleen), C. S. Bhemel, Denver.

Credit for the brilliant success of the fifty-fifth annual session is due to the President, Dr. George A. Boyd, and to the Committee on Scientific Work, Drs. G. B. Webb, E. D. Downing, and J. H. Brown.

Narcotics

The Opium Advisory Committee of the League of Nations estimates that 744,000,000 people of an assumed world population of 1,747,000,000 are within reach of medical service, and that the legitimate need of this group for narcotics should not exceed 335 tons a year. If medical services were available to the entire world, the annual requirement would still be only 786 tons. The amount actually consumed is about ten times this quantity; hence at least 90 per cent of narcotic drugs are consumed by addicts. It is believed that if the Opium Advisory Committee were given power, it could ration narcotics among the nations, and control

output at factories, so that little would be diverted to illegitimate channels.

Radium for Leprosy

The Kalihi Leper Receiving Hospital at Honolulu reports a brief series of experiments, in which leprosy nodules uniformly disappeared when treated with radium. In seven cases, nodules in the nose were treated by inserting a 50-milligram tube in the nostril from an hour and a half to two and a half hours, at intervals of two or three weeks. In all cases the nodules disappeared, and in three instances bacilli could no longer be recovered from the nares. The scope of the work is to be extended in the hope of solving the problem of the leprosy carrier.

Bacilli in Books

French investigators find that tubercle bacilli from laboratory cultures will live in the pages of books for two months. Bacilli from human sputum retain their virulence for four and a half months, and at the end of this time can still infect guinea pigs. The need for disinfecting books in public libraries is evident.

Prophylactic Salt

British investigators find that workers in steel plants and coal mines are able to endure high temperatures more readily when they add a pinch of salt to their drinking water. Cases of exhaustion are less frequent, even when the water contains only one-fifth of one per cent. Dr. Haldane, the English physiologist, explains that perspiration carries off salt of the body, and that physical exhaustion is partly due to salt depletion.

Filming Freud

Dr. Sigmund Freud, of psychoanalytic renown, is to create a film that will present his teachings in popular form. According to the announcement, the psychologist is to have an entirely free hand in his composition, and it is presumed that the celluloid films will be specially fireproofed for the venture.

A HISTORICAL SKETCH OF THE MEDICAL DEPARTMENT OF THE UNIVERSITY OF COLORADO

37 11

BY HENRY SEWALL

PROFESSOR OF MEDICINE, EMERITUS, UNIVERSITY OF COLORADO

It would be a simple matter to present a diary of internal events marking the development of the only Medical School now existing within the domain of Colorado.

But such a record would be rather less illuminative of the history of the institution than would a batch of canceled bills of the life of a man.

Until recently the Medical Department has had an organic connection with the University resembling a course of foetal gestation. Now the offspring has been delivered into an independent existence in which the finer ties are all preserved with the added opportunity of glorifying the Mother through development of its own influence upon society.

It is necessary to know something of the heredity and especially of the environment under which the educational family has developed. Upon what stem of character and intellect the Institution was founded and through what vicissitudes of poverty, stimulation and opposition it has emerged.

This involves a brief retrospect of the environment, human and physical, in which the University and its Medical School have developed; of other places than Boulder, of other institutions than that supported by the State.

Pioneer Days in Colorado

The sparsely settled Territory of Colorado did not achieve Statehood until 1876. In fact, until 1861 it was included in the western part of the great area known as the Territory of Kansas.

Organized parties of pioneers and prospectors made their way from the eastern part of the Territory of Kansas and settled on the present site of Denver. The first of these built a few log cabins as the foundation of "Montana City" in September, 1858. The location chosen was four and one-half miles south of the present Capitol building on the east side of the South Platte River, near the foot of what is now Evans Avenue.

This settlement went out of existence

within a year, through the pressure of a rival community, known as the "Auraria Town Company," which, in October, 1858, claimed 640 acres of land west of Cherry Creek at its entrance into the Platte. "Auraria was in this way the first town that was established at the mouth of Cherry Creek and was the nucleus of the present city of Denver."¹

A month later, November, 1858, another company of pioneers formed by the union of two parties from Kansas started a rival to Auraria in the "Denver City Town Company," the name being chosen in honor of James W. Denver, then Governor of Kansas Territory. Between the lines of the records one may read of the hot rivalries of those days, of strategic politics and strong-arm methods. The differences of the two settlements were finally composed and amalgamation led to steady growth.

Previous to 1880 the common designation of Denver was "Denver City." "When the (Newspaper) 'Denver Times' was established in the spring of 1872 its proprietors discarded the needless word 'City' from the title and head-line legends of the paper."²

An admirable synopsis of the earliest days of Denver and the contemporary history of the medical profession which kept pace therewith is to be found in "Medical Coloradoana," Jubilee Volume in Celebration of the Semi-Centennial Anniversary of the Colorado State Medical Society, 1871-1921.

The Colorado Seminary

As was indicated above, an indispensable factor in the upbuilding of an institution is the resistance of opposing as well as the coöperation of complementary forces. The University of Colorado was not the first chartered institution of higher learning in the Territory.

"The Council and House of Representatives of the Colorado Territory, in an act which was approved March 5, 1864, gave corporate powers to a body of twenty-eight prominent citizens of Denver for the pur-

pose of founding the Colorado Seminary. This was more than twelve years before Colorado entered the union of states, and it antedated by ten years the establishment of the next institution of higher learning in this region, the Colorado College at Colorado Springs. The first session of the Territorial Legislature in 1861 had provided for the State University at Boulder, but this institution did not open until September, 1877."³

"The movement inaugurating the Colorado Seminary was started in 1862 by the late John Evans, M.D., the second Governor of the Territory of Colorado, who had taken part in the founding of the Northwestern University at Evanston, Ill., and in whose honor that town was named. . . . The title 'Seminary' was adopted for the new foundation because 'University' had already been chosen as the designation of the state institution. 'Seminary' was, however, then defined in such dictionaries as Worcester's as a 'University.' The articles of incorporation required that no test of religious faith shall ever be applied as a condition of admission into said 'Seminary'; but it was provided that the successors of the original board of trustees should be appointed by the annual conference of the Methodist Episcopal Church having jurisdiction in Denver."³

The Seminary was opened November 14, 1864, in a two-story building of four rooms, on the southwest corner of 14th and Arapahoe Streets.

It would be worth while for some historian to trace the faltering progress of those early days. The facilities for instruction in men and means must have been feeble enough. The Faculty must have been like an ill-staked prospector of mineral wealth, with only the lure of hope to draw him on. Even so; financial stress closed the doors of the Seminary for a period of years in the '70's. The property was bought by the late Governor Evans who, in 1879, offered to donate it for the purposes of higher education.

The University of Denver

In accord with this design, in 1880 the Colorado Seminary was reorganized under its old charter with the title of "The Uni-

versity of Denver and the Colorado Seminary".

The first University degrees given in Colorado were issued by the University of Denver in April, 1882. This university successively organized special departments and gave the first degrees issued in Colorado in Medicine, Law, Dentistry, Commerce and Pharmacy. "The corporate title of the institution is the 'University of Denver.' It carries on all its business under the Charter of the Colorado Seminary, which exempts its property from taxation"⁴ In 1886 the University acquired a suburban tract of land, now known as "University Park," on which a campus was set aside. Here the Arts Department made its seat, the first building being finished in 1892.

Medical Department of the University of Denver

The establishment of a medical department was decided upon at a meeting held June 9, 1881, and a constitution and by-laws were adopted for the regulation thereof. Fifteen well-known members of the medical profession in Denver and one layman accepted chairs in the medical school, and the faculty was formally organized at a meeting held June 11, 1881. The first session of the medical school opened early in November (5th), 1881.

There were no full-time professors in those days. No salaries were paid. Fees of students were applied to development of the school. There were no laboratories, except a dissecting room of morbid equipment. When a private case demanded attention of a teacher at his lecture hour, that lecture was apt to lapse. Bedside clinics were given rather irregularly at the County Hospital and students were invited to witness operations at private hospitals.

But for all that the medical faculty was made of men with courage, character, sound sense and education as it then prevailed. Some of them had been tempered in the fires of the Civil War. They had high ideals—but did not talk about them.

In the catalogue of 1886-1887 the medical course was announced as of two years of six months each; it may be said that these

requirements were on a par with those of similar institutions throughout the country. Entrance examinations were prescribed for applicants unable to present certificates of preliminary education. "In this examination especial attention will be paid to writing, spelling and composition".

The medical announcements were lightened with the euphrasia emanating from the College of Arts, thus: "This city (Denver) is the Damascus of the West. Its beauty is the wonder of all who see it. Its intelligence is in proportion to its marvellous growth (population 75,000). Its churches are ably supplied, and its schools are second to none in the country. Music and the fine arts are widely cultivated. Colorado is the health resort of America; many thousands come here annually. The University offers to young people who cannot endure other climates, educational advantages equal to those of the best Eastern Colleges". "Its Medical School is of the highest grade (sic)." It will be seen that the University-mother ran true to genetic form exempt from the shackles of pestiferous accuracy.

Nothing could be more unscientific than a rigid judgment of the Medical Department at this time according to the most recent gauge of modern standards.

The student of those days could and did get a first hand practical acquaintance with clinical medicine and surgery, if he tried hard.

The latitude for examinations had a European flavor: "If a student has performed the requisite amount of work to qualify him in any subject, he may present himself for examination in the same at the end of any session, except in the strictly medical, surgical and obstetrical subjects which must in all cases, be passed at the last examination."⁷⁵

In its earlier years the Medical Department conducted its lectures in various locations, but in September, 1888, the school was given a permanent home in the Haish Building, property of the University of Denver, corner 14th and Arapahoe Streets. At this time the requirements for graduation demanded three years of medical study, in-

cluding two courses of medical lectures of less than six months each. In 1889 the lecture season was lengthened to seven months, and in 1895 the course of study preparatory to graduation was increased to four years.

It is obvious that such a history could only mean growth and acquired strength in the medical school. With the exception of small stipends paid to a few of the fundamental chairs, no salaries were enjoyed by the faculty.

Its members were from the medical-elect of the community, and above all they desired the advancement of their profession. Their own self respect was their chief urge—even before it was fanned by breezes from the Association of American Medical Colleges, which has done so much to stimulate and encourage the well-intending medical faculties and to intimidate those which might be selfish and mercenary.

The Medical Department of the University of Denver was occupying, rent free, a building belonging to the mother institution and enjoying immunity from taxation through this affiliation; but with the exception of such advertising as came from inclusion of the medical announcements in the general catalogue of the University it received no support from the parent institution. In the meanwhile the Medical Department had been able to purchase, through the fees of its students, essential valuable apparatus, such as microscopes, etc., and to accumulate a surplus which became the basis of a bank account. The University wished to apply a part of the earnings of the Medical School to its own needs. But the Executive Committee of the Medical Faculty believed that the advancement of the Medical Department could be assured only through control of its own finances and property which the Department had earned. An abortive attempt to gain consent of the University to such relations was made in 1888.

The Denver College of Medicine

A decade later, under the leadership of a powerful personality, Edmund C. Rivers, M.D., Dean of the School, the Medical Department again approached the University with a request for financial independence.

Negotiations, beginning in irritation but culminating in amiability, reached a conclusion in 1898. The University consented that its Medical Department should acquire a separate incorporation under the name of "The Denver College of Medicine." By the terms of agreement the Medical School continued, as formerly, in affiliation with the University but was permitted to have full ownership of its money, apparatus and other property.

At this time, largely due to the favorable issue of a legal controversy to be mentioned presently, The Medical School acquired new strength in all departments and the languishing dispensary became an important institution.

Temporary Sojourn in Denver of the Clinical Courses of the Medical Department of the University of Colorado

In order to explain this renewed virility in the Denver College of Medicine we shall have to anticipate an important episode in the life of the principal subject of this sketch,—the Medical Department of the State University.

"In 1892 the Medical Department of the University of Colorado, which had been started in its entirety at Boulder in 1883, was removed to Denver as regards the two last years of its course. This Denver branch of the school speedily attracted an able faculty and, tuition being practically free, it became a serious question whether another school, depending on the fees of its students for development, could subsist in Denver and maintain a standing equal to the demands of modern medical education. Long before this, the Medical Faculty of the University of Denver had received legal advice to the effect that removal of any part of the University of Colorado from its place of foundation was contrary to the provisions of the Constitution of the State."³ Chiefly through the agency of an important member of the Denver Medical Faculty, the late Samuel Augustus Fisk, a complaint was filed in the District Court of Arapahoe County on March 15, 1893, praying that the University of Colorado be denied the privilege of exercising the functions of a medical

school in Denver. The question became a legal shuttlecock until it was brought before the Supreme Court of the State. Not until June, 1897, did the Supreme Court answer the appeal, but then this body handed down a decision supporting in the plainest manner the contentions of the representatives of the University of Denver. "The strong medical faculty of the University of Colorado, being thus freed of their obligations to that institution have with few exceptions, united with the Medical Department of the University of Denver."³

The new blood added to the old institution worked wonders in its intermediary metabolism. Not the least important reformation was a change from the old slipshod financial methods through which the books of the Treasurer became encumbered with unpaid dues of students who readily acquired the viewpoint that they had put the school under obligations by the act of registering as candidates for degrees. A whip-control over financial affairs was instituted and the annual tuition fee of \$100 was collected with uniformity except in certain instances in which more humane consideration was sought by candidates in another medical institution. Even more important than the augmentation in the income of the School was the improvement in discipline among its faculty. Students who were compelled to pay for opportunities in turn demanded that they should receive them. Tardiness and delinquency among lecturers became rare; each teacher notably tried to live up to the respect due to his subject with a growing sense of his personal responsibility as expositor.

In 1900 the course of instruction was again extended, this time to cover a period of four years of eight months each.

The Gross Medical College

We cannot enter here into the pioneer medical history of Denver. A cause of dissension early made its way into the local Medical Society leading to a revolution and the genesis of antagonisms which long outlasted the memory of their origin.

When the Medical Department of the University of Denver was organized in 1881, a

considerable group of doctors, with some dominant leaders, was left out.

These gradually coalesced to form a rival medical school of purely proprietary character. This was known as the Gross Medical College, named for the distinguished surgeon, Samuel D. Gross. For property reasons the Gross Medical College was known as the Medical Department of the "Rocky Mountain University" which was incorporated under the laws of Colorado, May 7, 1887. No other offspring than its medical child was realized. We find in its announcements the same forensic euphoria already familiar, thus: "Few Medical Colleges in the United States have better facilities for teaching than the Gross". It cannot be denied that this institution was held in rather intense dis-esteem by its professional senior, and no doubt the opinion was mutual—if unexpressed.

The human impulse underlying the establishment of the Gross Medical College was probably typical of the forces in most proprietary schools. There was no need for its existence; its birth only doubled the number of ill-equipped medical institutions, of which it of necessity, lacking university affiliations, had to remain as the unit.

Nevertheless the Gross Faculty steadily increased in strength and was very active in attempts, against great odds, to develop a Medical School in harmony with the rapidly rising requirements advocated by the Association of American Medical Colleges. They had the energy to edit and publish monthly "The Gross Medical College Bulletin" which ran into at least six annual volumes. This was a medical journal especially devoted to comment on local medical conditions and with an animus admirably judicial and high toned. At a time when the Medical Department of the University of Denver was actively engaged, through the courts, in ousting the Medical Department of the University of Colorado from its illegal stranglehold on medical institutions in Denver, the Gross College Bulletin announced, "We desire to urge again the organization of an association of the Faculties of the three medical schools in

Denver. This has been the theme of our editorials upon several past occasions, but as yet no action has been taken." Again, under the caption, "The State School Fight", "It pains us to notice that the State School must resort to the cry of persecution in order to make their case more plausible * * *. The Gross Medical College agrees that the State School is making a very small fight by evading a definite law, but does not propose to worry itself by taking part in the contest. Whether right will win or not remains to be seen, but Gross will continue in its policy of attending to its own business."

But the upward movement of medical education throughout the country, entailing as it did increased expense in exploiting medical instruction, imposed an onerous burden upon the Faculty of the Gross Medical College.

So far from the institution being a source of revenue, according to accepted traditions of the Proprietary School, its support imposed a financial drain which promised no abatement⁷.

The Denver and Gross College of Medicine

As time passed the mingling in professional intercourse of the two regular medical schools of Denver became more intimate, mutual respect and confidence increased; original antagonistic personalities lost prominence. The first move to combine the Denver College of Medicine and the Gross College was initiated in 1900. Discussions occurred between committees of the two schools, but were fruitless and the attempt was abandoned. In the fall of 1901 the movement was again inaugurated and committees conferred until the Spring of 1902, when agreement was reached between the committees, and the question of fusion was put to vote in the respective faculties with affirmative result. A very prominent element among the forces leading to this union was the professional sympathy with the general trend of medical education to cut down the number of medical schools by abandonment, or by the union of the weak to make the strong.

Accordingly, the college year of 1902-1903 was distinguished by the announcement

of "The Denver and Gross College of Medicine", published as the "Twenty-second Annual Announcement of the Medical Department of the University of Denver". The first session of the united schools was opened in September, 1902.

The fusion of the two schools involved a reorganization of the combined Faculty resulting in an emeritus list of 11; Full Professors, 39; Clinical Professors, 7; Associate Professors, 4; Lecturers, 11; Demonstrators, 1; Instructors, 6; Assistants, 23. The requirements for admission of students, the course of instruction and graduation were strictly conformed to the standards set by the Association of American Medical Colleges. The matriculates of the schools thus united numbered: First year, 40 (including 5 women); second year, 28 (3 women); third year, 30 (2 women); fourth year, 35 (3 women); total, 133, beside 5 special students. Course of instruction, four sessions of eight months each^s.

The ideals of the new Medical School were practically portrayed in movements directed toward improvements both in the scientific and the clinical facilities for instruction. The University of Denver and Colorado Seminary owned property on the south side of Arapahoe street, between Thirteenth and Fourteenth streets. Rights to a building on this site, which had been used as a gymnasium, were acquired by the Denver and Gross College of Medicine from the University about 1905. This structure was remodeled at the expense of the Medical College into a very serviceable laboratory building.

In addition, a lease was taken from the University on vacant lots immediately contiguous, on which the Medical College proposed to erect a building for clinical instruction and the uses of its growing Dispensary. This brick structure was put up during 1906-1907 and was opened for service in the fall of 1907.

The cost of the Dispensary building was approximately \$21,000. About \$15,000 of the amount came from funds of the Denver and Gross College of Medicine. Over \$6,000 additional was raised by subscrip-

tion. These funds belonged to the Medical College proper.

It was agreed with the Trustees of the University of Denver that their Medical College was to hold an equity in the Dispensary building for twenty-five years, the value of the equity decreasing regularly until after twenty-five years it should have become *nil*. When, as will be seen later, the Denver and Gross College of Medicine fused with the Medical Department of the University of Colorado in January, 1911, the value of the equity held by the Medical College was approximately \$10,000. When this sum was realized from the University of Denver the Trustees of the Denver and Gross College of Medicine determined, after thorough discussion, to present it to the Medical Society of the City and County of Denver as a trust fund for endowment of its library, only the interest of the fund to be used to defray current expenses^p.

Agitation for the Fusion of the Two Medical Schools of Colorado

Following the decision of the Supreme Court of Colorado in 1897, declaring a Denver residence of a Department of the University of Colorado to be illegal, every meeting of the Legislature witnessed an attempt on the part of the State University to have passed a resolution allowing the submission to popular vote of a bill permitting the University of Colorado to conduct its medical work in Denver.

This effort was successfully opposed by the University of Denver until the legislative session of 1909, when the opposition of the University of Denver was withdrawn.

This climax was reached through an interesting congeries of circumstances.

The Denver and Gross College of Medicine was not only viable but was operating with fair success and credit. Its graduates received their degrees from the University of Denver. To the parent institution the Medical College owed much, not only for its housing, but for the very fact of its affiliation. Nevertheless, the medical faculty had wrung from the University practical independence in the use of its resources and it was essentially a "proprietary" school.

During this decade there had been, especially through propaganda from the Council on Medical Education of the American Medical Association, a nation-wide perception of the necessity for elevating the standards of and improving the facilities for medical education. Admittedly, the first step in this direction was rightly the abolition of the unworthy medical schools then in existence, and reduction in number and strengthening of the rest by fusion and union under Universities having hospitals under complete control. The Faculty was made to realize that it was the cynosure of all scientific eyes, that if they sinned it could not be secret. Dr. Colwell, representing the Council on Medical Education of the American Medical Association, actively corresponded with the Executive Board of the Denver and Gross College of Medicine during 1908-1909, urging the abandonment of proprietary schools or fusion with university institutions.

Above and beyond the inevitable, and defensible, viewpoint of self-interest, the Faculty of the Medical College wanted to do what was right and best for the general cause of medical education, especially as it was related to its own adopted state. They felt the burden of carrying on their school in a worthy manner to be too individual; they were, perhaps, tired of maintaining the moving equilibrium of a growing concern which must collapse at once with the relaxation of their efforts, and the steadily increasing cost of medical education warned of future disaster. Fealty to their parent institution, the University of Denver, was not lacking; but no assets could be hoped for in that direction; her own struggle for existence was thought to be acute. On the other hand, the School of Medicine at Boulder was insignificant in material resources or accomplishments. But this School, being the child of the State, had a relatively sure tenure of existence; like a government bond, it might be repudiated but only in case of general disaster involving all the people. Again, this School had the right spirit. It had been inseminated with the traditions of scientific idealism and felt itself the ex-

emplar and monitor of legitimacy in medical education; but its swelling ambitions were hopelessly impeded by mechanical obstructions. Nevertheless, by some means, perhaps rather through an appreciation of good intentions than through any manifestation of mass efficiency, this School had been accepted as a consort of the great institutions of the land. A glamour, as intangible as patriotism, the evidence of things not seen but the substance of things hoped for, enveloped the Medical Department of the University of Colorado.

A more or less definite perception of educational conditions as portrayed above had pervaded the minds of the Denver Medical Faculty when, in 1908, Dr. W. A. Jayne was elected Dean of the Medical College and accepted office on condition that an attempt be permitted to consolidate the Denver and Gross College of Medicine with the Medical Department of the University of Colorado. Chancellor Henry A. Buchtel of the University of Denver was then governor of Colorado. He was induced to head a committee of two from the Medical School to formulate plans and to confer with a similar committee from the University of Colorado.

The project for union of the Schools failed; the Trustees of the University of Denver would not agree to the plan.

It was in 1909 that representatives of the Carnegie Foundation for the Advancement of Teaching visited Colorado on a tour of inspection of medical institutions.

Their report on the facilities and methods of the Denver College was deprecatory, not to say contemptuous. Their comments on the State School of Medicine at Boulder were, on the contrary, strongly laudatory. The committee summarized its estimate of the two schools in the advice that they consolidate.

A small committee, including Mr. Flexner and the Deans of the two schools, met at dinner and on this intimate basis discussed the question of fusion from various angles. It was represented, in effect, that a high grade medical school should be located in Colorado; that schools without adequate endowment could not conduct medi-

cal education according to modern standards; that a union of the Denver and Gross and the State School would have the substantial moral and, probably, the financial support of those institutions interested in the establishment of medical education in the United States upon a high plane.

In the spring of 1910 the Executive Board of the Denver and Gross College of Medicine indited a letter to the Trustees of the University of Denver, setting forth the financial necessities for the support of a modern Class A medical school, and asking if the University of Denver could and would contribute the assistance required—otherwise the Faculty would be unwilling to conduct a school that was being regarded as second rate.

A negative reply to the query in this communication was received.

At a later date it was urged that, as an alternative to such assistance, a union of the Denver and Gross College of Medicine with the Medical Department of the University of Colorado was advisable. The University of Denver, through Chancellor Buchtel and Mr. W. G. Evans, Chairman of the Board of Trustees, agreed on the expediency of a union between its Medical Department and that of the University of Colorado whenever satisfactory arrangements could be made.

Negotiations between committees representing the two Medical Schools were undertaken and agreement for consolidation was reached in June, 1910, to become operative January, 1911.

Thus closed in amity a relation that had existed for more than thirty years. The Medical Department but answered the call of science and duty. But its members have a growing respect and appreciation for their heritage.

Conceived and nurtured in the Jovian head and lion heart of John Evans, the University of Denver has had a history which would read like an epic. A half century's struggle for existence by heroic Chancellors, Faculties and Trustees has won to safety and high place in the national scheme of education. The breadth of service of-

fered by this "Methodist" school is indicated in its catalogue for 1924, which registers a total of 3,635 students, of whom less than 36 per cent claim to be Methodist, while 7 per cent are Jews and 5.7 per cent Catholics.

The Denver Homeopathic Medical College and Hospital Association

The purpose of this sketch involves a notice of the brief existence of the only other Medical School that has operated in Colorado.

This was a Homeopathic institution which opened in 1894 as a stock organization. About 1898 it was incorporated under a law regulating "Eleemosynary Institutions not for profit". At this time the name of the institution was changed to "Denver Homeopathic College and Hospital". Later the institution became a department of the "Westminster University". About 1907 the institution was called "The College of Physicians and Surgeons, a Department of Westminster University".

It having become increasingly apparent that this medical institution could not acquire sufficient resources to flourish in a respectable manner its sponsors voted to terminate its existence in the fall of 1909¹⁰.

Beginnings of the University of Colorado

The Boulder City Town Company was organized February 10, 1859. The greed of the stockholders over-reached itself. "The high cost of lots caused the early failure of this community, only a quarter section being retained finally upon which to build the future city. Had the majority of the stockholders followed the experience of the Cherry Creek towns it is reasonable to suppose that Boulder would have become a very strong competitor to Auraria and Denver"¹.

"Before Boulder's first school house was a year old, Robert Culver began the work for a University to be located at this little town of some sixty log cabins and one or two frame houses. Chas. F. Holly introduced into the House October 26, 1861, a bill to establish the University at Boulder and this was ratified by Governor Gilpin November 7. For the ten years to 1871, the hamlet hardly kept itself together. The establish-

ment of the University by the first Territorial Legislature was merely on paper. There were only about 25,000 people in the Territory, mostly men; children and schools were few. It took sixteen years of hard work to bring the Actual * * *. The tract constituting the campus (52 acres) was presented to the University in 1872 (1871). The University opened September 5, 1877, with 2 teachers and 44 students¹¹. The president was Joseph Addison Sewall, M.D., a native of Maine and a graduate of Harvard Medical School. During the first session, 1877-1878, the names of 66 pupils were published, 39 men and 27 women; 7 had been born in Colorado.

"On December 26, 1876, the first meeting of the newly-appointed Board of Regents was held in Governor Routt's office in Denver. At this time the population of the state was 135,000, and its assessed valuation was \$44,130,205¹²."

When the University opened "There were two departments, Normal and Preparatory. In later years the Normal School was dropped and the Preparatory School removed from the campus and given a separate organization grounds and building * * *". "In 1878 a collegiate department was opened with ten freshmen. A Classical Course and a Scientific Course were offered; a Latin-Scientific Course was added three years later. In May, 1882, the first degrees were conferred, six B.A. and one D.D."¹².

Medical Department of the University of Colorado

"The Department of Medicine was announced in 1883 on the basis of a four year course. President Sewall was dean, associated with Wm. R. Whitehead, M.D. There was a class of two. In 1884 the faculty was increased by two physicians from Boulder and three from Denver; the course was reduced to three years. Two degrees were granted in 1885. From 1888 to 1892 twelve licenses were granted"¹¹.

In a foreword to the Catalogue of the University of Colorado for 1881-1882, it is stated, "Through the aid that has been received from the United States and the State, it (The University) is enabled to offer its

privileges, without charge for tuition, to all persons of either sex, who are qualified for admission". We will not here detail the revenues derived from appropriations which enabled the institution to exist on the moderate fees for students which were later imposed.

Dr. W. R. Whitehead was the mainstay and well nigh the sole prop of the Medical Department at its inception. He was a leader in the medical circles of Colorado, a graduate of the University of Paris, and a resident of Denver. Later in life he wrote an autobiography, which has not been accessible. During the first year of the Medical School Whitehead resided in Boulder, returning to his home at week-ends. He first held the chair of anatomy to which was later added that of surgery.

Dr. J. H. Kimball, a graduate of Harvard Medical School, was professor of physiology in the Medical Department of the University of Denver and Dr. H. W. McLauthlin, a recent arrival, was his assistant.

Through the persuasions of President Sewall and Dr. Whitehead, both those gentlemen were induced to break their ties in the Denver School and to join the University of Colorado in the fall of 1884. They continued to reside in Denver, but spent a day in Boulder once a week. The journey was made *via* the "Colorado Central" to Golden, thence to Boulder. The trip consumed at least two hours. Arriving at Boulder at 9 a. m., they worked four or five hours, reaching home in the evening¹³.

We must imagine that in this day's intensive work well-nigh the whole field of medicine must have been reviewed as far as it could be portrayed in lectures.

It must not be supposed that the optimism of its founders was universal. At the opening of the University, among the comments of the public press we find, "Boulder has discontinued its grammar grades to start a University". "Boulder University is an infidel institution".

A prominent citizen said of Dr. Sewall, "I am sorry for him; he must either fail or be God; he has got to make something out of nothing"¹¹.

At the Quarto-Centennial of the University in 1902, Dean Luman M. Giffin of the Medical School, quoting the first announcement of its establishment, "The Curriculum is to consist of a four year graded course of nine months each" * * *. "Had this ideal been insisted on it is a question whether any students would have attended the school * * *. This also explains the action of the Regents in lessening the number of courses to three and the preliminary educational requirements to what amounted to the reception of any student who applied, not enquiring too closely as to his education * * *. With seven to fourteen students in attendance, it became a question with the Regents as to the advisability of continuing the School of Medicine * * *. An annual pilgrimage of the Faculty of the Department to the meetings of the Board, at this time, to show reasons for the continued existence of the school, was the regular thing".

The Calendar of the University of Colorado for 1885-86 and until the session of 1887-88) does not include a medical catalogue, but notes that the medical school is one of five departments of the university and issues a separate circular. We find here the announcement, "A well arranged and commodious hospital, established on the university grounds and under charge of the Medical Faculty, is open to patients resorting to the College for treatment * * *. Clinical instruction will form a prominent feature of the course. The customary medical and surgical clinics will be held at the hospital. The bedside instruction will be thorough, under the guidance of teachers".

The following year the medical faculty consisted of nine members, including President Hale, three of whom resided in Denver and six in Boulder. The main strength of the teaching body, administrative and professional, resided in the Denver contingent. Students must have had ample time for cogitation between the visits of the alien staff. Certainly the melange of knowledge, supposed to endow the general practitioner, was typified in the versatility demanded of Dr. McLauthlin, whose courses covered, from first to last, about the whole range of medical

science and art. The course of study now embraced three years of nine months each. "The graduate must give evidence of having studied medicine for at least three years under direction of a regular graduate and practitioner of medicine of good standing, including the time spent upon lectures, and must have spent at least one continuous year at this School. He must write a thesis on a medical subject and present it to the secretary at least one month before the close of the session. He must pass the required examinations".

The good old preceptor was still the mordant to bite and bind the *ex cathedra* teachings from the rostrum. Evidently metabolism within the University was active, for we find in 1887-88 a special section of the General Catalogue devoted to the Medical Department with acknowledgement of cultural standing, thus: "The University of Colorado forms a part of the public Educational System of the State and, in accordance with the laws of the state, aims to complete the work of the public schools, by offering to all persons of either sex, who are qualified for admission, a liberal education in the Arts, the Sciences and Literature, without charge for tuition."

Among the requirements for graduation noted in the announcement for 1890-91, is that the candidate "must present evidence of having dissected the whole human body".

For the first time, Dr. Jeremiah T. Eskridge of Denver, a powerful figure in the medical councils of the state, and leader in his specialty of Neurology and Mental Diseases, came into the non-resident Faculty as lecturer on nervous and mental diseases.

In the following year James H. Baker, LL.D., became the President of the University and entered a long career of constant forward-passing in the interests of the Institution.

Drs. Eskridge and McLauthlin, aided by Regent Dudley and President Baker, induced the Board of Regents to allow the last two years of the course in medicine to be taught in Denver¹³. This change of location was first effected for the session of 1892-93, and J. T. Eskridge was made Dean and H.

W. McLauthlin, Secretary. The Medical Faculty teaching the clinical subjects of the last two years at once was augmented by practitioners, many of whom were leaders in the profession in Denver. The Denver Faculty numbered fourteen men. In view of this hejira it is interesting to quote from the catalogue of the University for 1892-93, a statement, repeated in following years: "The Medical Department of the University of Colorado has neither wholly nor in part removed from Boulder to Denver (sic). This Department is still with the State University in Boulder, where all executive work is done, but owing to the scarcity of clinical material here, the Regents have authorized the Faculty to give the instruction in Medicine in Denver during the second and third years of the course until sufficient hospital advantages are secured in Boulder * * *. The Medical School building in Denver is large and centrally located * * *. The building is situated at Seventeenth and Stout streets." (The location was on Stout street, east of Seventeenth street).

The administration and teaching of the Medical Department in Denver was carried on with great vigor, and year by year the personnel of the faculty was increased from among the best professional material in Denver and special lecturers were engaged from as distant a point as Pueblo.

It is worth noting that added to the Faculty at the session 1896-97, was a Homeopathic practitioner, Dr. Jos. B. Kinley, who became Professor of Comparative Materia Medica and Therapeutics. This was effected by Dean Eskridge with a view of ostensibly liberalizing the instruction.

The blow dealt by the Supreme Court of Colorado in 1897, which has already been described, brought to a close this career. As will be seen, this decision, a seeming catastrophe when it happened, in the conclusion proved only a manifestation of that mysterious "providence that shapes our ends".

Perhaps no more substantial basis of fact as to the development of an educational institution could be obtained than through a review of the annual announcements setting forth its offerings. But these publications

are not only catalogues of facilities and statements for the guidance of matriculates, they are also advertisements in which the occurrence of florid language may be taken as "camouflage" for inefficiency, and obscurity of meaning as indicating the substance of things hoped for but not realized. A calendar of progress becomes more statistical and business-like in its statements of facts as the stability of its foundation improves.

Nevertheless, it is perhaps to be deplored that the University of Colorado, in its development to vigorous adult life, abruptly ceased in its announcement for 1900-01, to set forth the climatic advantages to be enjoyed by students pursuing their studies in Colorado. The earlier catalogues very properly exploited this environment as one of its valuable assets. Thus, "Many young men and women who have been compelled to leave school, both in the East and South, on account of the development of pulmonary consumption, have come to Colorado and been able to pursue their studies without interruption"¹⁴.

"The advantages of the climate of Colorado, especially for pulmonary and malarial affections, are unquestioned." * * * "This advantage (to students) especially applies to the first year, which is given in Boulder, as the dust and smoke of Denver are avoided. Physicians much prefer their phthisical patients to remain away from Denver, at least during the early part of their residence in Colorado"¹⁵. We deduce that the insalubrity of Denver need have no terrors after a preparation of one year in Boulder!

The early exploitation of climate and subsequent avoidance of the issue is not peculiar to the published announcements of the State University; it had also characterized the texts of the catalogues of the Gross Medical College and of the Denver College of Medicine. It may be noted, too, that organized agencies "boosting" this environment as a playground for vigorous (and wealthy) people soft-pedal on its hygienic attributes, or rather let the health seeker unaided read between the lines.

It is not surprising that during the period under review there has been a country-wide reversal of mass opinion regarding the ameliorating effects of climate on certain constitutional and infective disorders, through which it is considered proper to belittle the benefits of a radical (and inconvenient) change of environment based, strangely enough, on the fact that astonishing improvement attends a very small change in the same direction (as by open air like in the local back yard) with little involvement of trouble or expense. It may be a mere coincidence by which tubercular Doctors still seek Colorado for their health while the ingress of the invalid-rich appears to have been greatly reduced.

There is adumbration of a new era in which bio-physical research promises to establish a foundation for medical climatology that shall lift it from the range of selfish human exploitation.

To continue our account of the Medical School: Catalogue for 1895-96, "Hitherto the course has been of three years duration with nine months each year. But students who take their first course of lectures in 1895, or thereafter, must attend four full courses of lectures, no two of which can be taken in the same year * * *. The Regents authorize the Medical Faculty to give the instruction of the second, third and fourth years, which embraces the clinical portion of the course, in Denver."

As has been narrated, the career of the Medical Department of the University of Colorado in Denver was cut short by a decree of the Supreme Court in 1897. The Catalogue of the Medical Department for 1897-98 was issued after the embarrassing decision which banished it to Boulder.

Stunned but not disheartened, the University met the situation as a good loser. We read, "Consequent upon the adoption of the four year course there will be no graduating class in 1898, and it has been deemed advisable to offer for 1897-98 only the first two of the four years. The instruction will be given at the University in Boulder" * * *. It is the purpose of the Regents to offer three years of the course in 1898, and the

entire four years in 1899," * * *. "In due time the people of Colorado will obtain for their University the legal right to conduct such part of the medical course in Denver as may seem advisable".

The conspicuously redundant faculty that had been connected with the Denver branch of the Medical School speedily atrophied by resignations. The catalogue continues: "A building is now in process of erection (in Boulder) in order to give more room for the Medical School. The laboratories for Chemistry, Anatomy, Histology, Bacteriology, Physiology, Pathology and Materia Medica will be maintained together with such clinical work as may be necessary in the first years of the course;" an obvious and a fair notice to the public that the Medical Department was still doing business at the old stand and intended to spread.

It is obvious that the University of Colorado has exerted on medical minds of this locality a positive chemotaxis due to some intrinsic power none the less real because of complex origin, and which culminated in "Prestige".

Each year thereafter, accretions to the Medical Faculty from Denver were realized. Physicians and surgeons of worth would put themselves to the inconvenience of journeying thirty miles to Boulder once or twice a week, for the sake of giving instruction; all this with little or no pecuniary recompense. Immediately after the banishment of the School to Boulder we find that the session of 1897-98 could claim but two visitors from Denver on its Medical Faculty; by 1900-01, this number had increased to seven, and for the session of 1910-11 (after fusion with the Denver School, but before removal to Denver) the visiting faculty from Denver numbered sixteen, beside one from Pueblo. A strenuous effort was being made to supply the deficiencies in clinical instruction. We find in the catalogue for 1900-1901, "The former hospital has been converted into a Medical building. To this a new wing has been recently added * * *. The new Hospital, containing 40 beds, is completed and finished according to the most approved plans. Both Hospital and Dispensary clin-

ies are offered". To graduate, a student must, "have attended four full courses of lectures of not less than six months each (no two in the same year) in some accredited college, and the last course must have been taken in this school".

Measured by the better standards of its time the medical school at Boulder was a very small affair and woefully deficient in exuberance of opportunities for clinical instruction. It was as if a private practitioner in an age of automobiles were obliged to go without such a vehicle of progression.

But its sponsors possessed assets of cumulative value. They maintained a high morale. They aligned themselves with the foremost ideals of advancing medical education. They maintained the standards of the medical curriculum. They concentrated on instruction in the fundamentals of medicine, and the smallness of the classes must have increased the opportunities of the individual student. The essential success of their program was attested by the congratulatory report of the Committee from the Carnegie Foundation for the Advancement of Teaching in its investigation of the status of medical education.

An account has already been given of the circumstances leading to union of the two schools of medicine in Colorado.

In the issue for the session of 1910-1911 the Medical catalogue of the University was able to include the announcement that "The Denver and Gross College of Medicine has been incorporated with the Medical School of the University of Colorado. The Denver and Gross School has discontinued teaching the subjects of the first two years. On or before January 1, 1911, the School will also discontinue the teaching of the remainder of the medical curriculum. Upon the passage of the Constitutional Amendment permitting the University to teach two years of the Medical course in Denver, to be voted on at the next general election in November, 1910, the first two years only will be taught in Boulder. The remaining two years will be taught in Denver, where hospital and other clinical facilities may be had in abundance. Hereafter all the medical teach-

ing in the State of Colorado will be under the auspices of the State University".

Union of the Two Medical Schools and Combined Clinical Instruction in Denver

The new school settled in an old dwelling house at 1307 Welton Street, which offered fairly commodious, if unattractive, quarters.

The State School had now won in its struggle of many years but its problems of administration had increased in complexity.

The rule still emanated from Boulder, but the work at Denver was conducted through a large and rather ill-organized voluntary faculty. Forces of disintegration were obvious and the task of keeping pace with general medical progress had no certain issue. In 1915, President Baker, who for nearly a quarter of a century had steadfastly carried the burdens of office, resigned and was succeeded by Dr. Livingston Farrand, himself a medical graduate, whose training and experience inclined his interest especially to the development of medical education.

The session of 1915-16 may be looked on as the potential beginning of a new era. No dean filled office. The administration work at Boulder was conducted by Prof. R. C. Whitman as local Secretary, while the same function was served at Denver by Dr. C. N. Meader, Assistant Professor of Medicine. The volume of the faculty was reduced by transport of seven members to the emeritus list; but forty-four full professors (only four of them "full time") were still retained, beside a staff of thirty-eight of lower grade.

There was thus an active faculty numbering eighty-two, while the total number of medical students, including two "specials," was eighty-one. The session of 1916-17 was inaugurated with Dr. C. N. Meader as Dean and Professor of Medicine of the Medical School, and leader in that remarkable development which has culminated in the present establishment. Professor Whitman at Boulder became general Secretary.

Entrance of the country into the war essentially modified the work of the School and the personnel of its faculty. President Farrand was absent on war-service for many months and was succeeded by Professor George Norlin, Ph.D., as Acting President.

Pruning of the active professional list was effective through the removal of twenty-three incumbents to emeritus rank. The active medical faculty was reorganized under fourteen departments, each with a full professor at its head. Subordinate to this staff was a list of ten Associate Professors, nine Assistant Professors, three Lecturers, twenty-four Instructors and nine Assistants, giving a full teaching staff of sixty-nine.

The spirit of the institution is well illustrated in the efforts made to realize opportunities for advanced instruction.

Thus, through the initiative of Dr. Edward Jackson, "The Board of Regents in June, 1911, authorized the establishment, beginning in June, 1912, of a graduate course in Ophthalmology, to be offered in Denver". Two courses were given, limited to graduates in medicine capable of meeting certain stringent requirements demanded of the Ophthalmic specialist. The first course consisted of daily clinical work and approved reading for a year carried out wherever desired. The second course must have then been taken under the University of Colorado and consisted of a summer semester of six weeks devoted to intensive study of the science and technique of ophthalmology and related subjects. The first degrees in Doctor of Ophthalmology were given in 1913.

Also, chiefly through the efforts of the late Dr. Peebles, "The Board of Regents in 1913, authorized the establishment of graduate courses in Public Health to be offered at Boulder. Courses are offered leading to the degree of Master of Science in Sanitary Engineering, Master of Science in Public Health and Doctor of Public Health". The illness and untimely death of Dr. Peebles robbed this endeavor of its main support and the department was abandoned after some months of operation.

A quarterly publication of "Medical Studies" was issued by the University of Colorado, and edited by members of the Medical Faculty, from 1904 to 1907, inclusive, and again from 1909 to 1913, inclusive, as the "University of Colorado Medical Bulletin". In the number for February, 1907, we find, "The University of Colorado Training

School for Nurses, which has been in successful operation for the last eight years, offers a thorough course of training to young women who desire to enter the profession of nursing * * *. Every applicant for graduation * * * must have been a regular member of the Training School for three years".

The number issued June, 1912, states "Thirty-nine degrees were conferred by the School of Medicine at the last Commencement Exercises. Since the opening of the School in 1883, there have been 270 graduates. Of these, not including the 39 of this year, 201 are in active practice. The graduates of the Denver and Gross College of Medicine, which was merged with the University of Colorado in January, 1911, number 620".

In June, 1913, The Quarterly announces, "A seven year course leading to the degrees of B.A. and M.D. is offered. The student pursues the regular work of the College of Liberal Arts for three years and then begins his medical studies. The B.A. degree is conferred upon the completion of the first year in Medicine". Publication of the Quarterly was later discontinued.

Removal to Denver of the Entire Medical Department of the State University.

The New Buildings

This sketch concludes with the realization of the vision which seemed but a wild dream only a half decade ago—the erection in Denver of a medical building, a general hospital, a psychopathic hospital; a housing group almost uniquely designed for the pursuit of medical science and art according to modern ideals.

An account of this Foundation and of the stressful efforts through which it was realized has already been made available by Dr. C. N. Meader, sometime Dean of the Medical School and active agent in its later development.

The Announcement of the University of Colorado School of Medicine published April, 1924, thus epitomizes the achievements closing the era with which we have been concerned:

"In November, 1922, a Constitutional Amendment was approved by vote of the

PRINCIPAL OFFICERS OF THE MEDICAL DEPARTMENT, UNIVERSITY OF COLORADO

(Nov. 5)	President of the University	Dean of the Medical School	Secretary of the Medical School
1883-1884 to 1886-1887	Jos. Addison Sewall, M.D., LL.D.		Jas. H. Kimball, M.D., of Denver
1887-1888 to 1890-1891	Horace M. Hale, Ph.D.		Jas. H. Kimball, M.D., of Denver
1891-1892	Jas. H. Baker, M., LL.D.		Jas. H. Kimball, M.D., of Denver
1892-1893 to 1895-1896	Jas. H. Baker, M.A., LL.D.	Jeremiah T. Eskridge, M.D., of Denver	H. W. McLauthlin, M.D., of Denver
1896-1897	Jas. H. Baker, M.A., LL.D.	Clayton Parkhill, M.D., of Denver	Howell T. Pershing, M.D., of Denver
1897-1898 to 1903-1904	Jas. H. Baker, M.A., LL.D.	Luman M. Giffin, M.D., of Boulder	
1904-1905 to 1906-1907	Jas. H. Baker, M.A., LL.D.	Luman M. Giffin, M.D., of Boulder	M. E. Miles, M.D., of Boulder
1907-1908 to 1914-1915	Jas. H. Baker, M.A., LL.D.	Wm. P. Harlow, M.D., of Boulder	Ross Whitman, B.A., M.D., at Boulder
1915-1916	Livingston Farrand, M.D., LL.D.	Wm. P. Harlow, M.D., of Boulder (Emeritus)	Ross C. Whitman, B.A., M.D., at Boulder Chas. N. Meader, M.D., at Denver
1916-1917	Livingston Farrand, M.D., LL.D.	Charles N. Meader, M.D., Denver	Ross C. Whitman, B.A., M.D., of Boulder
1917-1918	George Norlin, Ph.D., LL.D. (Acting)	Charles N. Meader, M.D., Denver	Ross C. Whitman, A.B., M.D., of Boulder
1918-1919	George Norlin, Ph.D., LL.D. (Acting)	Charles N. Meader, M.D., Denver	Ross C. Whitman, A.B., M.D., of Boulder Denver
1919-1920 to 1924-1925	George Norlin, Ph.D., LL.D.	Charles N. Meader, M.D., M. H. Rees, M.A., Ph.D., M.D., Assistant Dean	Ross C. Whitman, A.B., M.D., of Boulder
1925-1926	George Norlin, Ph.D., LL.D.	Maurice H. Rees, M.D., Ph.D., M.D., Dean, Denver	I. E. Wallin, M.A., Sc.D., of Denver

people permitting the Regents to unite the Boulder and Denver Divisions, thus enabling all medical instruction to be united in Denver * * *. The work of the School is divided among thirteen departments, each in charge of a professor who is head of the department and containing in addition an appropriate number of associate and assistant professors, lecturers, instructors, assistants and members of the Hospital and Dispensary Staffs. The heads of the departments with the Dean constitute the Executive Faculty, having jurisdiction under the President and Board of Regents of the University * * *. Operative and bedside clinics and clinical conferences are held daily at the Denver City and County Hospital, 250 beds * * *. The School also maintains a dispensary where daily clinics are attended by small groups of students * * *. Visits for the year 1922 were 24,116 * * *. In addition to these clinics are held for small groups at St. Joseph, Steele (contagious diseases), and Children's Hospital. Medical Library facilities are found in Boulder, and in Denver, (16,500 bound volumes; 210 current Journals) * * *. The new buildings include a Medical School Building, designed to accommodate classes of fifty, with adequate staff and research rooms; a State General Hospital of one hundred and fifty beds, capable of further expansion; an Out Patient Building housing the various out Patients Departments; and, uniting these a central Administration Building, having offices, library, museum, clinical amphitheatre and other centralized units. A State Psychopathic Hospital of eighty beds occupies a separate building closely adjacent and convenient for teaching purposes, while the School of Nursing occupies its own building providing teaching facilities and housing for ninety nurses. All buildings are served by a central power and heating plant, located by itself. The entire group is situated on a site of eighteen acres, affording ample room for such future expansion as is likely to prove necessary. It is expected that the Medical Group will be ready for occupancy in the summer or autumn of 1924''⁶.

At the date of writing, July, 1925, the

first year of work in the new quarters has been successfully completed.

It will have been seen that the life of the Medical School of the University of Colorado falls naturally into three periods: 1. Complete residence in Boulder, except for five years of clinical instruction in Denver, 1883-1910; 2. Fusion with the Denver and Gross College of Medicine, with clinical instruction in Denver, 1911-1923; 3. Removal of all the work of the Medical School to Denver and occupancy of the Medical plant, 1924—.

Our little sketch has covered forty years of varying fortune; of progress always against resistance, but always under a guiding star.

It is the period agreed upon for full human development, and it has Biblical analogy for the culmination of the span of anxious stress.

We have seen how through understanding, courage and tenacity, good dreams come true. A successful future must demand the same equipment—and much more.

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EARLY MEDICINE

"This is well worth noting: that what Nature craves for with inordinate desire is her medicine! She has indeed her reasons: for since the sickness was highly febrile and all the parts relaxed, the pickled gherkins were cooling and astringent. However, I can hardly copy this prescription into my prescription-book, much as a certain doctor wrote: Sauerkraut for fever!"—Johann Dietz (1665-1738).

THE RELATION OF DISEASES OF THE SKIN TO METABOLISM*

HARVEY P. TOWLE, M.D.

BOSTON, MASSACHUSETTS

The specialist in diseases of the skin is taught by experience to recognize several groups among the general practitioners. The first is composed of those who consider all skin diseases to be of external origin. The second group is composed of those who consider all skin diseases to be of internal origin and to be treated accordingly. Then there is a third group, unfortunately large, which gives little thought to skin diseases either way, which considers them of little or no account and which treats them after a sort of nickel-in-the-slot method. They, metaphorically speaking, drop a nickel in the slot and prescribe whatever remedy or method happens to emerge from the machine. There exists also a very large group which belongs to neither the external nor the internal, but which has a passion for collecting prescriptions.

In the early days of dermatology the influence of von Hebra was paramount so that for years there was little thought for any thing but external treatment. Gradually, however, men came to recognize that the results of purely external treatment were not satisfactory except in a small fraction of cases. Those skin diseases which have since been proved to be of purely external origin did well. In the majority the external treatment was faulty because it paid no attention to internal conditions. Consequently, there were developed the theories of the diatheses, the arthritic and the exudative, to explain certain cases. Although they were following the right road in elaborating these theories, their conception was so vague that they are now almost forgotten. Recent investigations in the field of metabolism have revived these forgotten theories under other names and forms.

It is of this new field I wish to talk to you today.

Bulkley says (The Relation of Diseases of the Skin to Internal Disorders—page 10) that "The proper treatment of certain dis-

cases of the skin often involves the most extended knowledge and application of the principles of general medicine". That applies to the subject of metabolism as well. The field is so large, even in its relation to the diseases of the skin, that, in the time allotted me, I can hope to do no more than to touch upon it. I can only sketch to you, in outline, the role which metabolism plays in the etiology and pathology.

It will make for clarity later if, at this point, I pause to give a few definitions, as upon them will rest what I have to say later.

First, let us understand what we mean by metabolism. The best definition which I have been able to find is in the Collegiate Webster's Dictionary. "Metabolism (meta. beyond; ballein, to throw)—The sum of the processes concerned in the building up (anabolism) of protoplasm and its destruction (catabolism); the chemical changes in living cells by which energy is provided for vital processes and activities and new material is assimilated to repair waste".

Let me elaborate that a bit. Food is taken into the mouth whence it is passed (not passes) into and through the gastro-intestinal tract. By a series of mechanical and chemical activities, the living gastro-intestinal machine changes the food into chemical substances which can be absorbed into the circulation and by it carried to the cells. By them these substances are taken up and used to create energy and to repair damage and waste. The production of energy of itself begets waste. This cell waste is carried by the return circulation to the organs of excretion, the kidneys, the lungs and the skin, which dispose of it outside the body. Not all of the food ingested is so transformed and assimilated. A certain amount of it, varying with the food substances ingested, remains behind and is carried off by the bowel.

It follows then that organs and tissues and circulation are all actively involved in the process of metabolism. But there is even more. The organs and the tissues and the

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circulation are profoundly influenced, if not actually controlled, by the vegetative nervous system. The vegetative nervous system is profoundly influenced, and probably controlled, by the glands of internal secretion. (Eppinger and Hess. *The Vegetative Nervous System*). So it follows that the consideration of metabolic processes must also include consideration of the vegetative nervous system and the endocrine glands. Of these I shall have more to say later.

At present I merely wish to call your attention to this involved chain of metabolic events and to point to the fact that a break or an interference at any part of the chain must, of necessity, disturb metabolism. Such accidents are constantly occurring, some from direct causes, some from indirect.

Before we proceed further I must say just a word about the vegetative nervous system. However perfect a machine may be from a mechanical point of view, it must be controlled if it is to function perfectly. The vegetative nervous system is the control which enables the machines of the body to function properly. Consequently it is most important that we should understand something as to how it works for, if the control of the metabolic machinery is not perfect, its product, metabolism, also is not perfect.

The vegetative nervous system is composed of two sets of fibres or systems. The one, known as the autonomic or vagus system, is stimulating. The other, known as the sympathetic system, is inhibitory. Their actions are therefore antagonistic. In the normal organism the pull of the autonomic system is so antagonized by the pull of the sympathetic system that a state of nerve tonus or equilibrium is produced. If the tonus of the autonomic system is increased, or, what amounts to much the same thing, if the tonus of the sympathetic system is weakened, we find that there results a distortion of metabolic function referable to overaction of the autonomic vegetative system. If, on the other hand, sympathetic tone is in the ascendant, we encounter metabolic disturbances referable to the overaction of the sympathetic system. A disturbance of the equilibrium of the vegetative nervous sys-

tem innervating the organs concerned in the process of metabolism must inevitably be reflected in the process of metabolism itself.

Eppinger and Hess (*Vagotonia*, page 10) point to the dangerous possibilities inherent in such a state of disturbed equilibrium as I have indicated. Under certain conditions, they say, small stimuli may cause large reactions either physiological or pathological. Higier expresses the same opinion when he says (*Vegetative Neurology*), in effect, that a stimulus, so small as to be powerless to appreciably affect a normal vegetative system, may, in the presence of an unbalanced vegetative nervous system cause effects of wide spread importance.

I think that there can be no doubt in your minds by this time that the state of the vegetative nervous system is a matter of prime importance to the question of metabolism. As Eppinger and Hess put it, "There is no doubt that, owing to its close relationship to the glands of internal secretion, the autonomic nervous system has a marked influence not only on the pancreas and the thyroid gland, but also upon the entire mechanism of metabolism".

You may wonder what bearing these facts, interesting in themselves, may have upon the relation of diseases of the skin to metabolism. Let me illustrate by a brief recital of a case from my private practice.

A girl about twelve years old was brought to me suffering from an affection of the skin which had been present six or seven years. She had consulted many general practitioners, among whom were representatives of the three groups which I mentioned earlier in this paper. Practically all agreed that the patient's disease was an eczema. The one group treated her with nothing but external remedies. A second group treated her chiefly by dietary measures with empirical external remedies. The third group gave her anything they happened to think of. None of them got very far with the case.

When I saw the child, the disease of the skin involved the whole face and forehead, the greater part of the scalp, the ears, the neck, the shoulders, the arms to the finger

tips, the upper and lower portions of the trunk, front and back, the flexures of the knees and the lower legs. Over these regions the skin was harsh and scaling abundantly. To the finger the skin felt like a nutmeg grater. Over many portions of the regions involved were large serous crusts and many areas of denuded epidermis. The hair was dry and harsh and lustreless. The eyebrows had been almost entirely broken off by rubbing. Scratch marks, deep and superficial, were everywhere. Lesions containing pus were frequent.

Why had neither the externalists nor the internists succeeded with this child? Very evidently she had a disease of the skin which might at least be termed eczematous because of the abundance of serum present in and on the skin. If, as it is becoming more and more the fashion among the internists to argue, eczema in all its protean forms is a disease of food metabolism, this child was the indubitable subject of a disturbed metabolism. If their arguments were sound, one or the other group should have made more progress.

Let us consider the case further when I think you will see both why these men failed and also how the facts I have cited concerning the vegetative nervous system and the glands of internal secretion can be made to apply.

The child was markedly undernourished. Her nerves were "jumpy". She was subject to storms of nervous rage and irritability. Her sweat function was completely in abeyance, but this could be adequately explained by the changes wrought in the skin by the long continued disease. Temperature changes, and particularly cold, were keenly felt. The feet and hands were habitually cold. The appetite was poor and capricious. It had been noted that the skin symptoms were adversely influenced by the ingestion of certain foods. The bowels were subject to changes from constipation to looseness and the reverse. Sleep was intermittent and not restful, being broken and hampered by the intense itching. Attacks suggesting asthma were quite frequent.

It would take too long to go into a de-

tailed discussion of this case. Therefore I shall mention only the chief lines to be followed in analyzing it and accounting for the various, seemingly confusing symptoms.

We decided first, that we had to do with a disturbance, a hyperexcitability, of the autonomic nervous system, as was evidenced by the pruritus, the exudative manifestations, the disturbed psychological state, the spastic conditions in the gut, the disturbed temperature sense and the hypersensitive nervous reactions. All of these symptoms are considered by neurologists as manifestations of vagotonia, that is, of hyperexcitation of the autonomic nervous system. Just here I wish to remind you of the earlier statement that slight stimuli are capable of producing large results in a state of disturbed vegetative nerve balance.

The state of vagotonia taken together with the dysfunctioning of the skin, the dry sparse hair, the rough, grater-like skin and the general under-development of the skin were sufficient evidence of deficiency in the thyroid secretion.

The states of vagotonia and of hypothyroidism amply explain the lowered metabolic tone and the physical state. These also explained much about the changes in the skin itself, for in the presence of such instability of the autonomic vegetative nervous system it was easy for the constantly scratching fingers, the irritation of the clothing and other small but repeated irritations to set up a state of actual inflammatory disease which aggravated the symptoms already present.

For all these reasons we prescribed no single line of treatment, but combined treatment of the skin with dietary, sedative and thyroid medication together with such general measures as were calculated to build up the patient's general health and strength. Under such combined therapy we were, in time, able to secure results which isolated methods of treatment had hitherto failed to secure.

To follow the style of the Latin fables, this case teaches that metabolism was not the whole story, but that in this, as in every other case, every single sign and symptom, both great and small, had to be sought out

and given its proper valuation if we were to get the true picture. Properly evaluated, each piece of evidence falls into its place like the pieces in a picture puzzle.

Just as there are cases in which the external factors are all important, so there are cases in which the internal conditions dominate. This is illustrated by the following case. A child, a little under two years old, was admitted to the Massachusetts General Hospital with a disease of the skin which involved large areas on the trunk and parts of both upper and lower extremities. About a year before a small patch had appeared on the front of the chest which was bright red, swollen by edema and covered with vesicles and blebs. The patch slowly enlarged peripherally, undermining the epidermal layer in its course so that it lay loose and free from its under attachments. The slightest trauma sufficed to remove it. From time to time fresh patches appeared on other areas and underwent a similar evolution. The child was well nourished. No error in his digestion or in the so-called internal organs could be detected. External treatment failed utterly to check or even to modify the disease. Dietetic measures were equally futile. Then the test revealed that the metabolic rate was minus 19. Thyroid medication was begun at once. The effect upon the skin was really marvelous. Within a very few weeks we were able to discharge the baby apparently well.

It has become a fashion now among the profession at large to ascribe all eczemas to errors in the food metabolism. It is further not infrequently expected that cutaneous food tests will reveal which particular food substance is at fault and that for a cure its removal is enough. Unquestionably there are some cases of eczema which are anaphylactic. There are many, many more in which food metabolism plays but a secondary part. There are therefore many sound objections to such an assumption as to the cause of eczema. First, as I have said, not all eczemas are due to food poisoning. Second, the cutaneous food tests are notoriously unreliable. Third, in many instances not even the removal from the diet of the food

substance indicated by the cutaneous test suffices, unaided, to cure the eczema.

I have just said that all eczemas are not due to food poisoning. That is, I think, a perfectly true statement. In my experience the percentage of cases of eczema in which perverted food metabolism is the chief factor to be considered in the handling of the case is quite small. On the other hand, I will agree that in a very large proportion of the cases of eczema some form of disturbed metabolism, not necessarily food metabolism, is a more or less important contributing factor in the production of the eczema. Usually its role is indirect. It acts most often by disturbing the functional balance, either by lowering the general health and thereby correspondingly lowering the resistance of the skin to the attack of harmful influences or by a sort of toxæmia which has a special affinity for the central vegetative nervous system, rendering the whole vegetative nervous system hyperexcitable.

In this connection I would remind you that I have already pointed to the fact that small stimuli, harmless to the normal organism, are capable of setting up severe pathological changes if the functional nervous system is already in a state of instability. The same is true of a tissue in poor local health. Small stimuli which would have no effect upon a normal skin often suffice to break down what I may call a sick skin. I quite agree with Dr. William Allen Pusey who argued before the Hampden County Medical Society at Springfield, Massachusetts that the exciting cause of nearly all cases of so-called eczema are of external origin.

In other words, an internal or contributing cause is rarely able, unaided, to excite an eczema. Contrariwise, an external cause, unless it is of extraordinary intensity or is repeated with unusual frequency, as a rule requires that some internal contributing agency should first lay the foundation upon which to act effectively, that is to cause damage.

One or two very familiar examples will perhaps make my argument clearer. A

housewife uses a washing powder containing a lye or other strong chemical every day. Eventually the skin will break down, though there may be no internal complication whatever. More often it happens that, for a long time, the patient has had indigestion as she calls it, has not been careful either in the choice of food or in its preparation. She has been overworked. Her nerves are jumpy. She doesn't rest well at night. She sweats easily and is always tired. You all know this type. Of course, the tone of the skin suffers along with the general tone. Yet the skin does not break out until it is attacked from the outside by some repeated agent, such as soap and water or another equally simple thing. Her general condition explains why *she* can not withstand the irritant effect of soap and *Mrs. A.* can-

Infantile eczema is almost universally cited by writers on anaphylaxis as a true result of perverted food metabolism. A few cases are. But I doubt seriously if even anaphylactic babies would have eczema if all forms of external trauma could be eliminated. Almost the first local sign of anaphylactic reaction in the skin is pruritus, which is almost at once succeeded by erythema. Both these phenomena are significant of an over-excited vegetative nervous system. I am of the opinion that more than a disturbed metabolic balance is necessary to the production of an infantile eczema. I believe that the second factor of some form of external trauma, such as scratching or rubbing or an irritating soap, must be associated with the metabolic error. The latter renders the skin more susceptible to attack. The trauma excites the eruption. Clinical corroboration of this theory is furnished by the fact that if we can completely protect the skin against the hands and the pillow and eliminate the scratching, the results are most gratifying. In other words, we find in infantile eczema, in my belief, another example of the ease with which a skin, the tone of whose vegetative nerves is unbalanced, breaks down under repeated small external attacks.

I have long been of the opinion that anaphylaxis is but a symptom of a deeper, sys-

temic condition. In this I am upheld by Eppinger and Hess, who say flatly in their monograph on Vagotonia that the symptomatic phenomena of anaphylaxis are due to autonomic irritation. They go farther (page 82) and state that "Clinically, Czerny's exudative diathesis (eczema) corresponds most closely to vagotonia."

I should perhaps here explain briefly what is meant by vagotonia. It is an increase in the tone of the autonomic or vagus system which may affect the whole system or merely a few of its branches. (Eppinger and Hess, Vagotonia, page 64). Higier (Vegetative Nervous System, page 62), gives these clinical symptoms as characterizing vagotonics or those suffering from vagotonia; an increased reactivity to pilocarpin, narrow pupil, widening of the eye slits, salivation and epiphora, hyperidrosis, reddening of the face, mild cyanosis of the sweating extremities, bronchial asthma, eosinophilia, hyperacidity, increased gastric peristalsis, transitory spastic conditions in the esophageal, cardiac and pyloric musculature and spasm of the circular muscles of the colon, spineter ani and of the detrusor muscle of the bladder.

Of course not all of these symptoms are likely to appear in any one case. But I do not doubt but what you can all recall cases in your own practice which presented a group of them. So, too, if you who have seen many cases of anaphylaxis will think back, you will see that it is just these vagotonics who have most often been anaphylactics.

It is only by some such hypothesis of an underlying condition of vagotonia that one can explain the changing conditions of anaphylaxis and particularly the vagaries of the cutaneous food tests. A patient reacting vigorously to a given food substance today very frequently is able to eat that same food substance, six or twelve months later, with impunity. I have watched food tests which react positively today become negative later, and later still become positive again. All of which indicates that while metabolism is disturbed, the cause of the disturbance is not the food alone.

Urticaria is a better example of the effect of disturbed metabolism than is eczema. A man eats strawberries and within a few hours his skin begins to itch and then to break out with the typical lesions of urticaria. Another man takes quinine or atropin or a salicylate and develops urticaria. On the eastern seaboard we see typical wheals caused by the hairs of the brown tail moth caterpillar. You have seen urticaria result from mosquito bites. Evidently the causes of urticaria are multiple. In all cases we have to ask ourselves why does one man have urticaria after strawberries and his table companion escape? Why does one patient develop a drug rash and another not? The answer must lie in the differences in the digestive capacity and functioning, in the state of the vegetative nervous system or in the functional state of the excretory organs.

Angio-neurotic edema is another disease of the skin commonly attributed to food poisoning or to a disturbed food metabolism. Its very name is suggestive of a break in the metabolic chain in the vascular and nerve supply. When an ingested food is at fault, do you not always find that the patient is a vagotonic or is in a generally debilitated condition or has some error of renal metabolism? Nor must we overlook the fact that an infection may be the starting point. More than once I have seen angio-neurotic edema of the face and eyes which I have attributed to an apical tooth abscess.

Erythema multiforme, dermatitis exfoliativa, pemphigus and dermatitis herpetiformis are all characterized by associated symptoms of disturbed metabolism. The exact causes of these diseases is, however, a mystery. Incidentally, as vagotonia is a cause of disturbed metabolism and of eosinophilia, it is of a certain interest that Swartz and Towle demonstrated that the blood of the diseases mentioned quite uniformly showed a high degree of lymphocytosis and eosinophilia.

We have seen that metabolic disturbance of the digestive tract commonly occurred in association with eruptions of the skin which manifested a distinct tendency to the forma-

tion of vesicles or blebs or other signs of serous exudation. In conjunction with disturbances of the renal metabolism, on the other hand, the manifestations in the skin are apt to be of the dry, erythematous-squamous type. The dry erythematous-squamous eczemas and psoriasis are types. I must not, however, be understood to say that *all* dry eczemas and *all* cases of psoriasis are always associated with a disturbed renal metabolism. That has yet to be proved.

It is at least suggestive that Schamberg and Brown (Arch. Derm. and Syph., 1923, p. 801) in an analysis of the blood and the urine of 280 cases of skin disease found uric acid values exceeding the Folin-Wu standard norm chiefly in cases of eczema and pruritus. Forty-four per cent of their cases of eczema, chiefly of the erythematous-squamous type, showed over 3.7 mg. per 100 cubic centimeters of blood. They believed that, while such a high uric acid blood content might be a coincidence in some cases, in the majority it was of casual influence. They reported that by recognizing the presence of uric acid as an etiological factor they were enabled, by instituting proper dietary measures, to overcome cases otherwise refractory.

According to Schamberg and Brown, then, 44 per cent of their cases showed demonstrable uric acid excess in the blood. Fifty-six per cent were negative in that respect. Evidently in these we must look elsewhere for the cause. Ormsby (Dis. of Skin, page 201) says that "among the conditions which are frequently associated with eczema and which probably stand in casual relation to that disorder may be mentioned the physiological states of pregnancy, lactation and dentition; systemic derangements which depend upon defects in digestion, assimilation and excretion; nephritis, asthma, disorders of the liver, anaemia, tuberculosis and syphilis. The number might be extended to include all disorders which reduce the general vitality and therewith also that of the skin". I have already said so much about relationships such as these to the production of skin disease that I need not discuss them further.

I wish now to say a few words about psoriasis. Opinions differ concerning the role of metabolism in the disease, but unquestionably there is a certain percentage of cases in which it can be demonstrated that faulty nitrogen metabolism is at least an associated condition. For years physicians have empirically prescribed a low protein diet because it was felt, although without laboratory confirmation, that over much protein acted unfavorably upon the disease. It was a matter of common observation that many psoriatics are subject to arthropathies which, clinically, markedly resemble the arthropathies of non-psoriatics. Perhaps it was because it was the custom to cut down the proteids in arthritis or rheumatism that it also became the custom to cut down proteids in psoriasis.

Indeed several observers have been so impressed by the frequent occurrence of arthritic symptoms in psoriasis, especially of the fingers, that they spoke of a psoriatic arthritis. Nowadays we look upon arthritis as the result of a toxin from an infectious process. There is suggestion in the fact that many of us have seen the eruption of psoriasis flare up after such infective diseases as tonsillitis or influenza.

There is another group of cases of psoriasis, however, in which there is no such clinical evidence of infection but in which an error in the nitrogen metabolism has been demonstrated, and still a third group in which there has been found neither evidence of infection nor disturbed nitrogen metabolism.

In 1913, Schamberg, Kolmer, Ringer and Raiziss (*J. Cut. Dis.* October and November, 1913) made a very elaborate investigation of the blood and urine in eight cases of psoriasis. In 1916 Denis and Towle repeated their investigations in a slightly larger series of cases and confirmed their results. Johnstone, in 1907, could discover no abnormality in the nitrogen products in the urine.

Schamberg and his coworkers found that, on a given protein diet, a psoriatic subject eliminates less nitrogen in the urine than a normal individual on a corresponding diet. The psoriatics exhibited a remarkable nitro-

gen retention which appeared, in a general way, to be proportionate to the extent and severity of the eruption. They found that nitrogen was retained to a greater degree than had been observed in connection with any other condition. Experiments with urea feeding convinced Schamberg that the nitrogen retention can not be attributed to any disturbance in the eliminative capacity of the kidneys. Analysis of the exfoliative scales proved them to consist of almost pure protein. Large amounts of nitrogen can be lost in this way, but even so, the loss could not adequately account for the nitrogen retained. The protein in the scales could only be supplied by the circulation, and Schamberg found, as we did, that the nitrogen content of the blood was abnormally high in psoriatics even when the production of the scales was minimal.

Dr. Denis and I further confirmed the observation that while a low protein diet exerted a favorable influence upon the eruption it did not entirely remove it. We also made the observation that the high protein content in the blood was lowered to normal by a diet very low in protein. We discovered also that after a low proteid regimen of about three weeks the nitrogen tolerance had so increased that the patient could tolerate a 50 per cent proteid diet without increasing the nitrogen retention in the blood.

Inasmuch as sun-therapy and ultra-violet light therapy have been proved to stimulate metabolism in rickets it is possible that we have here still further evidence of a disturbed metabolism in psoriasis in the very favorable effect which both these agencies have upon the disease.

Yet after all the cases of disturbed nitrogen metabolism, demonstrated by laboratory methods, and after all the cases presumptively due to some form of disturbed metabolism as revealed by the favorable effect of light therapy have been removed, there still remains a residue in which all evidence of metabolic disturbance is entirely lacking. Perhaps it is the same factor or factors working in these unidentified cases as that which, as noted, prevents complete cure when all demonstrable evidence of nitrogen

retention has been eliminated by dietary methods. The inference is that while disturbed metabolism may be an important etiological factor it is only a part of the story in all cases and is apparently absent in many.

There are many other conditions of the body in which a perverted metabolism is one of the most characteristic symptoms. At the same time certain skin diseases are prone to occur. If only time permitted, I should like to discuss the role which metabolism plays in their production. As it is, I must dismiss the topic with the briefest mention.

The time of puberty is a time of perverted metabolism in a host of patients. It is also the time when acne, seborrhoea, seborrhoeic eczema and the like are most prone to appear. What part does metabolism play in their production? Are the skin diseases the direct product of the perverted metabolism? I have only to ask if rectification of the metabolic error will cure these skin diseases. Your own experience will supply the negative answer, which is correct.

And so in the climacterium we may ask if the metabolic disturbances characteristic of this period of life are not really associated conditions rather than causal as regards the urticarias, the flushings of the skin and the herpetiform eruptions which also characterize the climacterium.

Disturbance of pancreatic metabolism results in diabetes. It is notorious that diabetics are peculiarly liable to boils and carbuncles and other germ infections. Does any one here believe that boils do not occur without diabetes? Of course not.

In all that has gone before I have been trying to make the point that before we can accept metabolic errors as the sole, or even the prime, cause of disease, we have many questions to answer. I do not mean to belittle the importance of the role of metabolism in the production of skin diseases. I will even go so far as to say that it is unlikely that we can properly treat a majority of the diseases of the skin without giving due consideration to the metabolic conditions. I do, however, mean to say that,

on the other hand, in a majority of the skin diseases we can not rely solely upon correction of the metabolic conditions but must also give due attention to the external conditions. Just now metabolism is in the medical saddle. I have endeavored to bring home to you the fact that as one swallow does not make a summer, so the detection of a metabolic error does not necessarily, or, indeed, usually, tell the whole story of a disease of the skin.

DISCUSSION

A. J. Markley, Denver: The discussion of a paper so highly scientific as the one which we have just heard is, I must confess, an undertaking that I approach with great trepidation, since I am quite certain that no one can adequately discuss such a paper unless he had given to its subject some such study and work as Dr. Towle has devoted to it during the past few years. As a clinician, however, I think it may be permissible for me to make brief reference to some few of its salient points. Now, as to the need for such a paper, that is self evident, since we have definite knowledge of the actual cause of relatively few diseases of the skin; the cutaneous manifestations of tuberculosis, and syphilis; such local infective processes as the impetigos; the various mycoses; the skin reactions to certain animal parasites; and to certain chemical and physical agents, about completes the list leaving a great mass of the major dermatoses,—the eczemas, the seborrheids, psoriasis, lichen planus, the toxidermas of erythematous, papular or urticarial type, dermatitis, herpetiformis, pemphigus, lupus erythematosus, certain dystrophies and pigmentary disorders, about which we must still say "cause unknown." To be sure, dermatologists have long held the belief that these unknown causes lay more or less definitely in the realm of disordered metabolism; yet they have too often been unable to determine in just what part of the metabolic mechanism the fault lay or in what way this particular metabolic fault operated to bring about the skin disorder, or if so fortunate as to determine just what the metabolic fault might be, to correct it.

Dr. Towle has very definitely indicated that there often is, and may be in any case, more than one factor in the causation of even simple disorders of the skin; we are familiar with cutaneous eruptions, the cause of which is apparently perfectly clear, and the treatment of which is ordinarily satisfactory, but which instead of responding to treatment, or subsiding, will persist and extend until they involve more or less the whole of the cutaneous surface. And why? Simply because, in addition to the well recognized factor, there is an underlying or a contributory factor, the definite nature of which is often extremely difficult to determine. For instance, we have all seen cases of apparently simple dermatitis induced by external irritation, as poison ivy, an attack of scabies, irritating substances or materials incident to occupation, extend and spread and become very formidable dermatoses. Now, while it has ordinarily been supposed that our methods of treatment were at fault, and the reason for the extension and

spread of such processes has been faulty treatment, on the other hand, it has been faulty diagnosis. We have failed to appreciate the underlying or contributory causes of conditions of which external irritation has been merely an exciting or precipitating factor.

I subscribe quite fully to Dr. Towle's statement that external causes, particularly of inflammatory and eczematous processes, is the dominant factor. Nevertheless, if we fail to give due appreciation to underlying factors which may be metabolic, we will avail nothing in our treatment. Even the most scientifically and correctly conducted forms of treatments will fail if there remains behind an improper diet, improper elimination, a metabolic disturbance, particularly of the vegetative nervous system, or possibly a metabolic rate above or below the normal. If these conditions are not recognized and corrected, the most careful treatment applied externally will result in failure; and it is for this reason, of course, that skin diseases have become notorious for their intractability. It is highly probable that all chronic skin diseases are complex in their origin, and unless we are prepared to carry forward some such line of study and investigation as Dr. Towle has outlined, we are going to fail altogether as dermatologists. I have almost arrived at the belief that a dermatologist is chiefly a diagnostic consultant, that it is largely his role to determine what few skin diseases are of specific or external origin, and are amenable to such treatment, and I am very much disposed, if I consider my diagnosis correct, and the condition under consideration to be an internal disturbance of which the skin disorder is merely a manifestation, to place the management of such a case in the hands of the internist, and I believe that the best interests of my patients have often been conserved in doing so. The dentists have served me well on many occasions by removing infected teeth. The nose and throat men have often rendered service in the removal of tonsils and the treatment of diseased throats and noses; I have learned from the surgeons that the removal of a diseased appendix, gall-bladder, kidney or prostate will often correct a skin disorder that has defied all other methods of treatment; the correction of faulty dietary or the correction of functional derangements of the digestive system are important aids in certain skin disorders; estimation of the metabolic rate and blood chemistry studies also seem to promise much in the diagnosis of obscure skin diseases. Yet all the conditions just mentioned are but factors in the production of disordered metabolism, and as such come within the scope of the study Dr. Towle is doing and which we hope may lead to solution of some of the obscure and important dermatologic problems.

O. M. Gilbert, Boulder: I do think it would be a pity to let this paper go by without a little bit of discussion other than that from a dermatological point of view. I think it is one of the most remarkable papers we have listened to for a long time. It is not so much indicative of the progress in dermatology as indicative of the trend of medicine in general. We old fellows remember so well when we would simply have been told what prescription to write out for eczema and dermatitis, and so on, and we would never have dreamed of the day when for a skin disease we would be compelled to go into the study of the

whole man as we are now, as was so well indicated by this research which Dr. Towle and his associates have been carrying on. It shows how we are forced to recognize the fact that the whole field of medicine is so closely related that we have got to go down into the very biological essence of life itself to determine what means we must pursue in treating a simple skin disease. I think it is so strongly suggestive of the whole trend of medicine that I hate to see it go by without a remark from the internist as to the tremendous significance of this sort of work.

T. A. Stoddard, Pueblo: I don't know anything at all about skin diseases, but I have often wondered what has been the outcome of the homeopathic treatment of skin lesions. I remember listening to a homeopathic lecture on a patient who had what he called *saltrheum*, a very severe case, and he prescribed one drop of a thirtieth of *matrum muriaticum* twice a day, and I have often wondered just what effect that would have.

Dr. Towle (closing): What I wanted to bring out particularly in my paper was this, which is often expressed and oftentimes not expressed, that a specialist is a specialist first, last and all the time. I have rather objected to that. Furthermore, there is a tendency constantly being thrust upon me to accept one symptom as the whole thing, or another fact as the whole thing. The cutaneous food tests are a rather recent development, and in my section there is a tendency for men to accept that as the answer to all problems if they get a positive reaction. I wanted to bring out that point, that the skin is a part of the body. It is supplied by the same nervous system, the same vascular system as the rest of the body, subject to all the internal influences of the body, and owing to its peculiar situation on the outside it is subject to all the external forces. It is all the time being attacked by something, and it is part of the body to resist the attack. As Dr. Morris Richardson so well said, "It is a wonder that having been born into the world we have remained in the world, because it takes so little to carry us off." The question is often advanced, why does Mr. A have a disease and Mr. B, exposed to the same conditions, not have a disease? The answer, of course, is, what is the meaning of that particular disease to the different patients? That leads us, as we have seen, over the whole field of medicine. As a very good example, I have had from time to time college boys in training for the football team, in perfect physical condition so far as the stethoscope or even the sera tests would reveal, and yet those boys are particularly prone to staphylococcal infections. Now, there is a meaning in that, and that is what I have been trying to emphasize all the way along, the meaning of these things. Hutchinson, I think it was, said "If one could read right, the skin is a better index of the physical condition than is the thermometer." Why do these boys have the staphylococcal infection? It means first of all that their bodily resistance is low. If you sum it up, you can see, when a boy is subject to repeated staphylococcal infections, he is over-trained. If I have made my point clear, that we must take nothing for granted, but try and explain to ourselves satisfactorily such symptoms as we have in question, I shall be very much pleased indeed.

FRACTURES OF THE NECK OF THE FEMUR TREATED BY THE ABDUCTION METHOD AS DESCRIBED BY WHITMAN*

The Report of Two Unusual Cases With Complete Skiagraphic Examinations and Review of the Bibliography

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There is no more disabling deformity met with in traumatic injuries than the unsuccessfully treated fractures of the neck of the femur. With the purpose of emphasizing the seriousness and of bringing before this Society the great importance of adequately treating these cases by one of the most rational methods, the writer is presenting the abduction treatment of femoral neck fractures as described by Royal Whitman¹ of New York in 1904.

When treated by the usual conventional methods, such as the Buck's extension or by traction combined with the so-called abduction hip splints, the final percentage of results is startlingly poor.

An article by Bissell², published in the Philadelphia Medical Journal for May 30th, 1903, states "The results of the treatment of this injury, no matter what methods may be used, are as a rule, far from satisfactory," and further he says "If the patient escapes with his life, he has to be contented with loss of function, loss of symmetry and equipoise and is often obliged to go about permanently crippled". In Bissell's conclusions, he suggests that the best treatment for femoral neck fractures would be an open operation with the wiring or pegging of the fragments or the employment of whatever means may be necessary to hold the fragments in a correct position until bony union has taken place.

Again, in a report of one hundred and twenty consecutive cases of ununited fractures of the femoral neck observed at the Mayo Clinic³ not one had received efficient treatment at the time of the injury.

It is indeed, therefore, most gratifying that we now have a means, as described by Whitman, whereby without open reduction and with the minimum danger to the life

of the patient, these injuries can be successfully treated and an excellent functional, and in many instances an anatomical, reduction secured—a method applicable to all ages and particularly so in elderly persons when so many serious and even fatal complications arise as a result of these injuries.

It has been my good fortune to have assisted Dr. Whitman in some of his early cases of femoral neck fractures treated at the Ruptured and Crippled Hospital in New York twenty-one years ago, and since that time I have universally employed the abduction method in a fairly large series of cases with most satisfactory results.

Many methods have been described in our standard text books on surgery, such as the Ruth Maxwell, or the Thomas Hip Splint, or the long side splint with Buck's extension; and although in some instances excellent functional results have been obtained, nevertheless the restoration of the normal anatomical position of the femoral neck and head, has, to a very great extent, been lost sight of, which, in the method of Whitman has been so satisfactorily accomplished in a large percentage of cases.

In the light of our present knowledge of fractures of the femoral neck, the long-held opinion that these injuries occurred only in elderly persons or persons of advanced years must be greatly modified. We now know that femoral neck fractures may take place even in young persons and that the trauma causing these fractures may be comparatively slight. In 1908, Haldenwang⁴ collected twenty-five cases of fracture of the femoral neck occurring in patients from one to eighteen years. In this series the majority occurred at the base of the femoral neck and the remainder at the middle third.

In Malgaigne's⁵ tabulated report of one hundred and four cases the following figures will be of interest:

*Read at the annual meeting of the Colorado State Medical Society, Sept. 29-Oct. 1, 1925.

Age	Male	Female
4 to 50 years.....	9	5
50 to 60 years.....	9	10
Above 60 years.....	30	41
	—	—
	48	56

Total number of cases, 104.

Whitman states that "The inception of a radical reform dates from 1890 when he identified a fracture of the neck of the femur in a young child and reported it as a surgical curiosity". At that time the only form of fracture of the hip in early life recognized in the textbooks was epiphyseal disjunction or separation, of which a few cases of doubtful authenticity were recorded in surgical annals.

The anatomy of the hip joint, briefly considered, may be described as a ball and socket joint with the normal angle of the femoral neck with the shaft of 125 degrees. A change of this normal angle resulting in what is termed a "coxa vara", or an approach of a right angle position between the neck and shaft, results in an adducted position of the thigh and limitation in the normal range of abduction.

Incomplete or impacted fractures cause deformity not because of shortening of the limb, but because of the restriction in the normal range of abduction. Therefore it is evident that any method of treatment in fractures of the neck of the femur must primarily overcome this adduction deformity and restore the normal femoral neck angle. Thus by extreme abduction and internal rotation the normal relationship can be restored. Again, in complete fractures of the femoral neck, by direct traction and forcible abduction and internal femoral rotation the return to the normal anatomical relation with the fragments on the same plane would be accomplished. Any retentive apparatus which hold the fragments in their proper position and affords complete fixation offers the most promising results both as to functional and anatomical correction.

In describing the method as originated by Whitman, I will quote from his recent excellent and illuminating article published in

the *Annals of Surgery* for January, 1925, volume LXXXI, page 374.

"Anesthesia is not absolutely essential but is of great advantage because complete muscular relaxation is a requisite of complete anatomical abduction, and if properly administered during the application of the plaster of paris spica, it is free from danger. The patient, having been anesthetized is placed on a pelvic support with a perineal bar, the shoulders resting on a box of equal height, or a much improved means is by using the Hawley fracture table. Two assistants make manual traction on the fully extended limbs, drawing the perineum against the perineal bar—reducing the shortening on the injured side, the surgeon meanwhile lifting the thigh upward if it is below the plane of its fellow. Both limbs being thus extended, and under manual traction, that on the injured side being rotated inward, are then abducted to the full limit, on the sound side first, to demonstrate the normal range and to balance the pelvis. When this limit is approached on the injured side, tension on the capsule which surrounds each fragment assures the alignment of the fragments, and by fixing the limb in complete abduction and slight inward rotation, the security of the internal splinting is assured".

The long plaster of paris spica is then applied, extending from the axillary line to the toes with the leg slightly flexed on the thigh and the foot at right angles to the leg.

"The spica, properly applied assures a general, comfortable and secure support free from pressure or constriction".

Stockingette shirting is applied to the limb and body and covered by sheet wadding with felt padding over the crest and anterior superior spines of the ilium, and then securely fastened by a roller cotton flannel bandage; the spica being reinforced at the groin by a piece of thin steel one-half to one inch wide and from sixteen to eighteen inches long. The plaster spica is then carefully trimmed so as to allow flexion of the sound thigh, and when the spica is thoroughly dry it is covered with an outer stockingette shirting.

The patient is then returned to bed, the head of the bed being raised twelve to fourteen inches on shock blocks, and a solid fracture board placed between the mattress and spring to prevent sagging.

Within twenty-four hours after reduction of the fracture, the patient is turned completely over to the ventral position, which not only removes the pressure of the sacrum, and prevents bed sores, but is one of the great factors in preventing hypostatic pneumonia. This ventral attitude is most comfortable and the patients pass many hours in this position. It is also important to note that the delirium so often seen in these cases, when treated by the old method of dorsal recumbency, is extremely uncommon.

The great advantage of this method over the usually applied means of treating hip joint fractures, must be obvious to every surgeon, and when one reviews the surgical literature of reports of cases treated by the Whitman method, one cannot fail to be impressed with the excellent results which have been obtained.

Kleinberg⁶, in the Medical Record for January, 1922, reports three cases successfully treated by the abduction method in which in one case no efficient treatment had been employed until five months after the original injury.

Murphy and Dorrance⁷ add twenty cases treated by this method, and in this series they report one case which had been treated for four weeks by the Buck's extension, before the abduction method was applied. These authors state that no case was considered too ill for this form of treatment.

Campbell⁸, in his analysis of two hundred and twenty-seven cases of femoral neck fractures, concludes that solid bony union may be obtained in a high percentage of fresh fractures of the anatomical neck, and also in ununited fractures under one year.

Jones⁹, in his monograph on the treatment of fresh and ununited fractures of the femoral neck in his series of thirty-eight cases treated by suspension, traction, or Buck's extension, states that not a single good result was obtained.

Pirtle¹⁰ reports a case treated by the abduction method in which bony union was obtained in a woman of one hundred and six years.

In my own series I have been able to obtain bony union in a large percentage and useful functional limbs with, in most instances, no resulting limp in 70 per cent of the cases in which the abduction method was carried out.

The two patients who have recently come under my observation will serve to illustrate the great value of the abduction method in ununited intracapsular fractures of the hip in which solid bony union was secured, which in the case of Charcot Disease of the hip, reduction had not been accomplished until eight weeks after the original injury.

That reduction of intracapsular fractures can be accomplished in some cases without the use of a general anesthetic and that bony union can be secured even in those cases in which distinct arthritic changes have previously occurred is seen in Case 1, which has recently come under my care.

Case 1. Mrs. A., aged 53 years, on August 13th, 1925, tripped on a rug in her home and fell, striking the left hip on the floor. She was unable to walk following this accident, and suffered great pain in the left hip joint, which was increased by any motion. She was seen by Dr. Leonard Freeman of Denver two hours after the injury, who kindly referred the case to me for treatment.

Upon examination of the patient, a marked general arthritis is noted of both knees, both wrists and ankles and the left elbow, these joints being enlarged, swollen and painful on motion with a slight amount of fluid in the knees on both right and left side. The feet are held in a position of valgus deformity and adduction is practically limited and muscle spasm present.

The left lower extremity is adducted and markedly rotated outward and she is able to lift the heel from the bed with the thigh and leg extended. Rotation, internal and external, is entirely restricted and there is infiltration and swelling over the affected hip joint. Motion in any direction elicits pain and muscle spasm.

The diagnosis of intracapsular fracture of the femoral neck of left femur was made and confirmed by skiagraphic examination made by Dr. S. B. Childs. (Figure 1).

The heart is enlarged and a moderate myocardial change is noted, although no cardiac murmurs were detected. The blood pressure registers systolic 174 and diastolic of 80. A definite hypertension is noted.

The patient was taken to St. Luke's Hospital and without anesthesia the injured limb was stretched and abducted to thirty degrees and rotated inward with the knee flexed ten degrees on

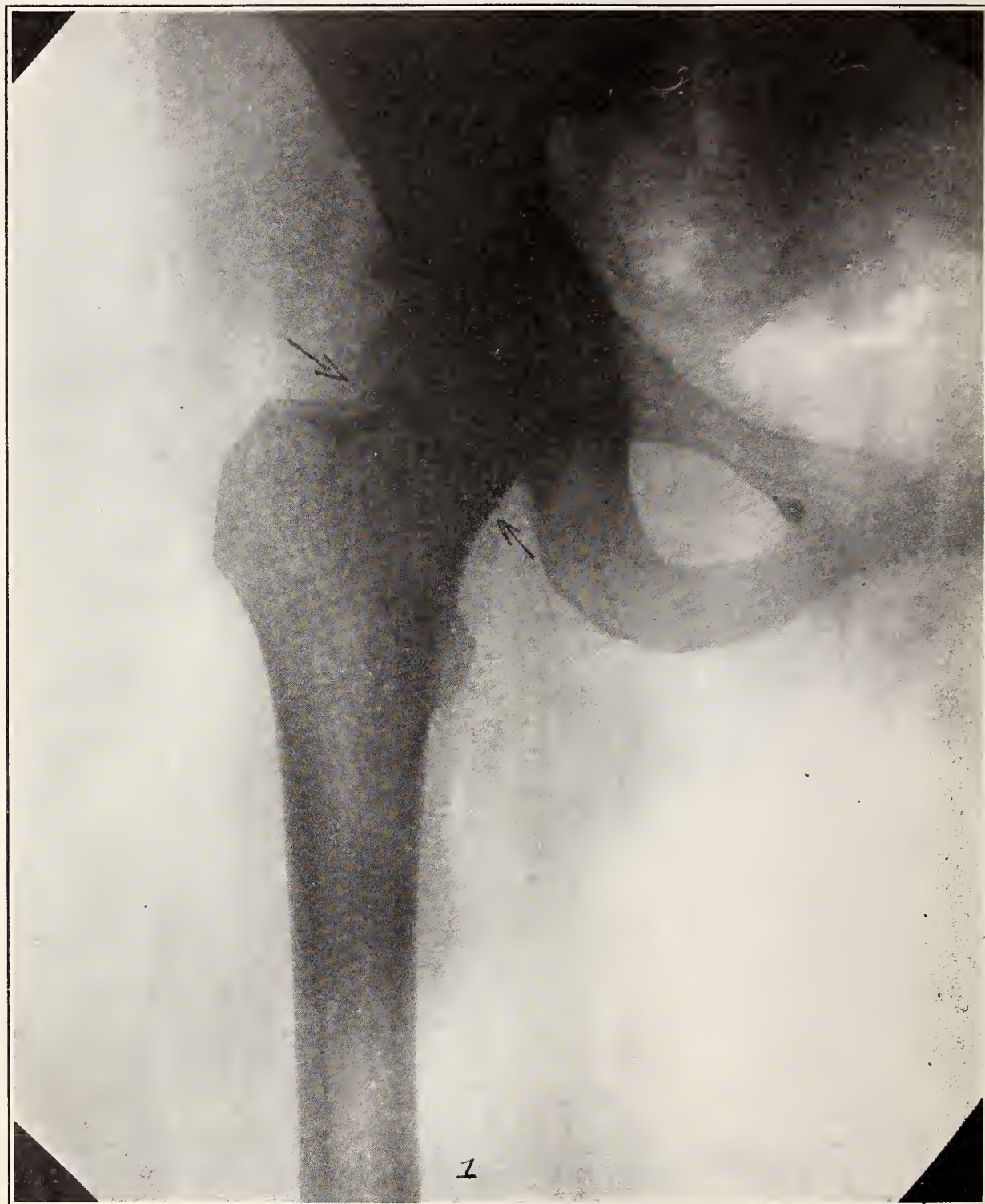


Fig. 1. Case 1. Skiagraph taken before reduction showing the cervico-trochanteric fracture of the left femoral neck and the adduction of the thigh and lipping of the superior rim of the acetabulum due to arthritic hypertrophy. Skiagram taken August 12, 1925.



Fig. 2. Case 1. Skiagraph taken four days after reduction by the abduction method (August 18, 1925), showing the femur markedly abducted and the restoration of the anatomical position of the femoral neck.

the thigh and with the foot at right angles, a long plaster of paris spica was applied, by means of the Hawley table.

The head of the bed was raised twelve inches on shock blocks and at the end of twenty-four hours the patient was turned to the ventral position. This attitude is taken twice daily and is not attended with pain or discomfort. From two to five hours are passed in this position.

The second skiagraph, taken on August 18th, 1925, shows the restoration of the normal angle between the head and the femoral neck with the thigh abducted and internally rotated. (Figure 2).

The third radiograph (Figure 3), taken on September 19th, 1925, shows the same normal relationship between the head and neck and the establishment of bony union.

This case emphasizes the fact that even in the presence of marked arthritic changes in femoral neck fractures one can secure bony union; and the anatomical relation between the femoral head and neck can be accomplished, and without resulting deformity.

It must be remembered that in fresh fractures of the cervico-trochanteric type complete immobilization is necessary for ten to fourteen weeks and that weight-bearing is contraindicated until at least four months have elapsed since the original injury. Muscle training, massage, and diathermy are all important adjuncts in aiding in the restoration of the functional return and should be carried out for several weeks after bony union has been secured.

Campbell, Wallace, Kleinberg, and other observers have demonstrated that bony union does take place in cases in which even after several months have elapsed since the original injury, when treated by the abduction method, and that the restoration of function can be secured.

Case 2. Mrs. Y., aged 54 years, on February 8th, 1925, while walking on a polished floor, stumbled over a rug and fell, striking her left hip. She was able to take a few steps after the accident but suffered pain on weight bearing and on motion of the hip joint. She was treated by an osteopath for eight weeks, by manipulation and massage, and was confined to her bed.

The patient had been previously under the care of Dr. George Moleen, being treated since 1909 for tabes dorsalis. I am indebted to Dr. Moleen for his kindness in referring the case to my care and for furnishing me with his neurological report made prior to the present injury.

Neurological examination: A fairly well developed woman, five feet, four inches in height and weighing about one hundred and forty pounds. There is a fine regular tremor of either hand. The dynamometer records right hand 150, left hand 180. She walks with a slight ataxic gait with the eyes open, but on closing the eyes in walking she goes constantly to the right. There is slight incoordination of the arms.

The Tendo Achilles reflex is absent on both right and left sides, and there is no ankle clonus. The deep reflexes of both forearms are increased. Superficial reflexes of both right and left plantar are present. The Babinski sign is absent. The Gordon reflexes, both right and left, give slight reaction.

There is a general cutaneous hyper-esthesia. The pain sense is hyper-acute. The pupils are equal and nystagmus is absent. Both pupils respond actively to accommodation, but the Argyll-Robertson pupil is present in the right and sluggish in the left eye. The fundus of the right eye

shows a pearly white atrophy of the optic nerve. The arteries are small and attenuated in both right and left fundi. Romberg sign is present.

The blood serology gives a positive reaction to the cholesterolized alcoholic extract of the human heart and to the acetone insoluble lipoids of human heart.

The spinal fluid Wassermann was positive. The diagnosis was made of tabes dorsalis.

On April 13th, 1925, she was referred to my care for treatment of the injury to the left hip joint.

On examination there is a well marked outward rotation of the left limb with a shortening of approximately three-quarters of an inch. The left trochanter is three-quarters of an inch above Nelaton's line and has a normal relation on the unaffected side.

Motion of the hip joint is restricted in abduction and rotation, and she is unable to lift the leg with the thigh and knee extended. Pain is elicited on flexion and rotation at the hip joint. The trochanter is distinctly enlarged. The diagnosis of intracapsular fracture was made and confirmed by skiagraphic examination made on April 14th, 1925, by Dr. Bouslog. (Figure 4.)

In studying these skiagrams the conclusion was reached that the hip joint on the affected side presented the typical appearance of a Charcot disease in which a traumatic intracapsular fracture had occurred.

On April 15th, nine weeks after the original injury, the patient was taken to St. Luke's Hospital, and, under ether anesthesia, the limb was stretched, abducted and rotated inward, as described by Whitman, and a long plaster of paris spica was applied extending from the axilla including the foot.

The spica was removed in seven weeks and daily massage was begun.

In August she was able to walk with the aid of a cane, unaccompanied by any pain or discomfort.

The examination made September 3d, 1925, shows no outward rotation of the limb, with full extension at the hip joint. The patient can abduct the thigh to thirty degrees, and can flex the hip to an angle of seventy-five degrees. She is able, without difficulty, to raise the leg from the horizontal with the thigh and knee extended. The measurements show a shortening of three-quarters of an inch, the R. A. thirty-three inches and the L. A. thirty-two and one-quarter inches. She walks with the use of a cane and has no pain in the injured hip joint.

This skiagraph, taken by Dr. Childs on September 2, 1925 (Figure 5), shows solid bony union at the site of the old femoral neck fracture with the angle of the neck and shaft of one hundred and fifteen degrees. There is marked hypertrophy of the great trochanter and the formation of new bone at the upper border of the acetabulum, due to the tabetic arthropathy of the hip joint.

The surgical literature upon the subject of Charcot Disease of the hip joint, in which traumatic fractures have occurred and in which solid bony union has taken place following efficient treatment is indeed meager.

The case is of interest, I believe, in the fact that it shows that bony union does occur even in tabes arthropathies with Charcot



Fig. 3. Case 1. Skiagram taken through the plaster of paris spica, showing the beginning bony union and the normal angle maintained between the femoral neck and shaft of the left femur. Skiagram taken September 1, 1925.



Fig. 4. Case 2. Skiagraphic examination of a Charcot disease of the left hip joint, showing an intrascapular fracture of the femoral neck, and marked adduction of the femur. Taken before reduction on April 14, 1925.



Fig. 5. Case 2. Skiagraphic examination made on September 2, 1925, after reduction by the Whitman abduction method, showing solid bony union at the site of the intrascapular fracture of the femoral neck. Hypertrophy of the great trochanter is noted as a result of the Charcot disease of the hip joint in a tabetic arthropathy.

Disease of the hip, in which the same mechanical treatment was instituted as in fractures of the femoral neck occurring in normal bones, and also in which eight weeks had elapsed before reduction was accomplished.

In the *Deutsche Zeitschrift für Chirurgie* for 1907, Baum¹¹ reports three cases of Charcot hips in which intracapsular fractures have occurred and in which following proper treatment solid bony union was secured. This author concludes that fractures occurring in Charcot joints in tabetic subjects have the same tendency to heal by bony union as those occurring in normal bone, provided that proper mechanical treatment is instituted. He also believes that there is entirely too much pessimism on the part of many surgeons regarding the final results which can be obtained in these fractures occurring in tabetic arthropathies.

The case which I have reported in my article bears out the opinion of Baum that even in well marked tabetic cases with Charcot complications in which a fracture has occurred, bony union does take place and functional results can be obtained.

Conclusions

1. That the abduction method of treating femoral neck fractures as described by Whitman is most satisfactory and effective and gives the highest percentage of anatomical and functional cures. A favorable prognosis can be expected in approximately 75 per cent of the cases.

2. That it is applicable to any age, for it allows of the frequent turning to the ventral position, preventing many complications such as hypostatic pneumonia, delirium, skin excoriations, and bed sores seldom occurring.

3. That it restores the normal structure and the normal relation of the femoral neck and head at the site of fracture.

4. That solid bony union does occur in fractures of the femoral neck when properly treated, both in fresh fractures of the anatomical or surgical neck and also in cases in which proper reduction has been delayed even many months after the original injury.

5. That bony union can be obtained in Charcot tabetic arthropathies if efficiently treated.

6. That many cases in advanced elderly persons in ages ranging from seventy-five to one hundred and six years¹⁰ have resulted in solid bony union when treated by the abduction method.

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DISCUSSION

George B. Packard, Denver: Dr. Jones has certainly given us a very important and interesting paper on the subject of "Fractures of the Neck of the Femur." I agree with him fully, and in discussing the paper I want simply to emphasize certain points of treatment and reduction results. There is one thing that we ought to remember in these cases, that in all probability the lack of bony union in many cases is not due to deficient circulation, but is due to the fact that the fragments are not held in position. Some years ago Dr. Ruth of Iowa read a paper before the Denver County Medical Society, and treated a case in the County Hospital by the Ruth-Maxwell Method, which is double extension, lateral extension as well as horizontal. I was quite interested and followed that treatment for several years and got much better results than we originally had with the treatment that had been in vogue in those times. But it is not equal, in my opinion, to the abduction treatment. As Dr. Jones remarks, the reduction is a very important detail,—the fact that it is necessary to have two assistants, one extending the well leg, and the other the fractured leg. This allows the surgeons to feel the joint, and if necessary, to press up the fragments against the anterior border of the capsule, which acts as an internal splint. I think it is very important in these cases to have an anesthetic, and first to flex the thigh in order to relieve any trouble with regard to the fragments in the capsule. Then, in the first place, as the doctor has remarked, the well leg should be abducted to its limit, and then the fractured leg, abducted, extended, with internal rotation, which is very important, until the fracture is practically reduced; and there really should be a measurement taken at that

time. In this position the cast, of course, is applied. One great advantage of this method of treatment, of course, is the fact that the patient can be turned to the ventral position, which is very important, especially in elderly people, in preventing hypostatic pneumonia and delirium. This method enables the patient to remain for several hours a day in the ventral position, which is very important. This method can also be applied quite a long time after the fracture, and good results have been reported.

The doctor is certainly to be congratulated on the result of the fracture in the Charcot joint, for any treatment that will bring about bony union in the Charcot joint is certainly very efficient.

Peter O. Hanford, Colorado Springs: There is very little left for me to say about the treatment, because that has been gone into so extensively; but for the purpose of bringing up discussion, and going over this thing with Dr. Jones, perhaps it is up to me to ask why this treatment is not universally adopted. If you will read that article in the January issue of *The Annals of Surgery*, you certainly will be convinced. If you read Scudder, you will have a reproduction of that article in his last book, as you will in Whitman's own book on this treatment. He has given it all, of course, in this January issue, but it seems to me he is almost too modest in what he puts in his own book on this thing. And why does not it appeal to the mass of medical men? If these results can be obtained, and they can,—you cannot fake the proposition and report these things—if they can be obtained, why don't they appeal to the medical men? I don't know. In going about through various hospitals in recent years, it occurs to me that the plaster proposition has gone to the discard, and the man who can put on a proper plaster cast,—an old fashioned plaster cast, we will say, one that looks good and holds good and stays good,—is rather pointed out as an exceptional man. Is it that proposition, or is it the fact that we have gone into the Balkan Frame with the Thomas hip splint-extension—counter extension and have gotten, in a good many cases with abduction, very good results? That is not for me to say. Right now I am coming from under a mass of eight of these things: one in a case of pellagra which went on out. A second one, a woman eighty-two years old, the fourth day developed an absolute traumatic ileus. After going into the Whitman treatment, and immediately getting the "buck fever," I took everything off. She got over her ileus. She had everything you could expect to come along with shock of the abdomen. As soon as she recovered from that, she had her pneumonia. Now, I only say this and recite this case because she was not in plaster at that time. I had ripped the thing off, and yet she went on. Putting them into plaster does not always keep your patients from having traumatic ileus; it doesn't always keep them from having pneumonia. It is just that I want to keep the idea before you that these things will come that I recite this case. But I can't see, when we are getting these end results as reported and when we get so many of these cases referred to us fellows who are doing bone work, with bad end results, why this treatment isn't borne in the general mind. Why is the patient told, perhaps for safety's sake, that "very little can be done for you at your age, and perhaps the best thing is to leave you absolutely alone?" I don't see why we don't preach the gospel of giv-

ing them the chance and getting the thing done when it can be done in this way.

H. G. Wetherill, Monterey: The treatment of certain fractures today requires a special knowledge which the general practitioner rarely possesses. Fractures about the elbow, about the shoulder, about the ankle and particularly about the hip, demand special skill; and when the general practitioner undertakes to treat these fractures he too often lacks it. Then too we expect altogether too much in the way of perfect anatomical and physiological results from the treatment of any fracture of the hip. There are certain trophic and neurological changes which are incident to these fractures which have nothing whatever to do with the form of dressing that may be applied. In my own case there are to this day certain trophic changes that occurred notwithstanding the fact that there were no bandages used and no restriction of motion, and no interference with circulation. These trophic changes have resulted in some impairment of function. Where we go into the courts to defend ourselves against people who demand perfect results, it is important to bear in mind that regardless of what the treatment may be there are changes incident to the fracture itself which cannot be corrected and the leg cannot be made as perfect as it was before. My leg is smaller in diameter all the way through. I have neuralgic pains in it and some impairment of function and the sort of thing that might easily be attributed to the treatment, if bandages, splints and extension had been used. We should understand this phase of the problem in our own defense.

C. E. Tennant, Denver: Dr. Jones has presented an extremely interesting paper, and he is to be complimented in the way he has taken it up. There are probably methods today which are not as satisfactory as the Whitman Method. But what Dr. Wetherill has said in connection with the early ambulation and change in function, I can also testify to in instances which I have seen, and I think we have all seen. In the application of the Whitman splint we must take into consideration the fact that no matter what treatment is used on any lesion of any kind, it is the first treatment which counts. In other words, if the limb is placed in perfect apposition (the position which I concede is best obtained as Whitman has outlined it), we have done that which has been most effective to secure proper apposition as the primary treatment in this lesion. Dr. Jones has shown that this method may be applied after some period of mistreatment, a period of some eight weeks, with good results.

The question of time in which the patient may recover, of course varies considerably. One must consider the age of the individual and the constitutional condition, as well as position of the fragments. In some instances we are obliged to take off this cast at as early a period as Dr. Hanford has indicated. We realize that bed confinement for these elderly people means a certain amount of atrophy and a change in their constitutional and circulatory habits, because of this confinement. Sometimes it is better, perhaps, to make a compromise. If the treatment has been properly applied, well applied as in the Whitman cases, to begin with, many times bone union occurs more rapidly than we had reason to anticipate. It is sometimes surprising how rapidly bone will unite with good apposition. In view of this I have at times been obliged to make a compromise in patients who do not do well with

bed confinement, and, as Dr. Wetherill suggested, ambulate them rather early. I say rather early, at a period of four or five weeks, perhaps, and I do away with confinement by putting them on crutches. A method of fixation and protection which I have found satisfactory in some cases in which I have been forced to get them up at an earlier period than usual, has been the construction of a corset which fits the torso very snugly, the hip supported somewhat similar to the Shafer Brace and along the leg a metal strip extending up the side to the axilla, a hinged joint at the hip and the metal strap carried on down to, or below, the knee with a leg corset. In some cases these patients, when getting up for the first time, have to learn to walk over again. As Dr. Wetherill says, there are many functional changes occurring about the muscles of the back and legs. I think one reason for this is the change in the vertical alignment, or posture of the individual. We must remember that after fracture of the head of the femur the weight is not distributed through the leg as before. New muscles are brought into play. These patients many times do not get up and around very safely, and my thought has been to apply the device I mentioned to protect the joint for at least six or eight months, while the elderly patient is becoming re-adjusted during this period. I merely suggest this because I have been obliged to compromise as to the period of bed confinement in some of these old people.

Dr. Jones (closing): In reply to Dr. Hanford's question as to why this abduction method is not more universally used, considering the fact that it was described by Whitman over twenty years ago—I think that this question can be at least partly answered in saying that the unfamiliarity of the average surgeon with the application of plaster of paris dressings prompts their resorting to other means in treating these femoral neck fractures, and also that the restoration of the normal angle of the femoral neck and shaft by applying extreme abduction of the thigh and internal rotation is not sufficiently emphasized in the management of these intracapsular fractures. Frequently the first skiagraph taken before reduction will show little or no femoral neck in these injuries, but upon internally rotating the injured femur, a well developed femoral neck can be clearly demonstrated.

In a most interesting monograph "Les Fractures du Col du Femur," by Professor Antoine Bassett of the Faculte de Medicine de Paris, he states that the blood supply of the femoral head persists in persons of old age and the femoral head is viable even in old persons.

In a recent personal letter from Dr. Whitman dated September 10, 1925, he says "That in certain cases of intracapsular fractures there is a preliminary absorption of the femoral neck after which the fragments may unite if contact is assured."

Later, if not apposed they become covered with fibrous tissue, which is frequently seen when cases of long standing of ununited fractures of the neck have to be operated upon.

In case 2, in which a fracture of the neck occurred in a Charcot hip joint, it will be noted that in the first skiagraphic examination no femoral neck was seen, but upon rotation inward of the femur a femoral neck is demonstrated as seen in the skiagraph made after reduction.

Dr. Wetherill's remarks are important, regarding the osteo-arthritis changes which can take place in this type of fracture, and it is known, as pointed out by Llewellyn Jones, that interference

with the nutrient artery and damage to these vessels can result not only in non-union but also is a causative factor in producing arthritic changes in the joint subjected to trauma.

The comfort which these patients enjoy and the ability of changing their position to the ventral one largely minimizes the serious complications of pneumonia, delirium, and bed sores which are so apt to occur in elderly persons.

A MILITARY CHRISTIAN SCIENTIST

In the sixteenth century armies were without medical corps. The nobles had their personal physicians. The common soldiers dressed their own wounds, engaged the services of barber-surgeons or relied upon the quacks who accompanied the army as adventurers.

Ambroise Paré, a French barber-surgeon of those times, tells of the mortal wounding of a nobleman with a promised cure that failed:

"Then a Spanish imposter came forward, who promised on his life to cure him; and if he did not, they should cut him in an hundred pieces; but he would have no physicians, nor surgeons, nor apothecaries with him; and M. le Duc de Savoie forthwith bade the physicians and surgeons not to go near M. de Martignes; and sent a gentleman to bid me under pain of death, not so much as to touch him. Which I promised, and was very glad, for now he would not die under my hands; and the imposter was told to dress him, and to have with him no other physicians or surgeons, but only himself. By and by he came, and said to M. de Martignes, 'Senor Cavallero, M. de Savoie has bid me come and dress your wound. I swear to God, before eight days I will set you on horseback, lance in hand, provided none touch you but I alone. You shall eat and drink whatever you like. I will be dieted instead of you; and you may trust me to perform what I promise. I have cured many who had worse wounds than yours.' And the Seigneurs answered him, 'God give you His grace for it.'"

"He asked for a shirt of M. de Martignes, and tore it in little strips, which he laid cross-wise, muttering and murmuring certain words over the wounds; having done this much for him, he let him eat and drink all he would, saying he himself would be dieted in his stead; which he did, eating but six prunes and six morsels of bread for dinner, and drinking only beer. Nevertheless, two days later, M. de Martignes died; and my friend the Spaniard, seeing him at the point of death, eclipsed himself, and got away without good-by to any man."—Ambroise Paré, "Journeys in Diverse Places."

GUNSHOT BALM

While I was at Turin, I found a surgeon famed above all others for his treatment of gunshot wounds; into whose favor I found means to insinuate myself, to have the recipe of his balm, as he called it, wherewith he dressed gunshot wounds. And he made me pay my court to him for two years, before I could possibly draw the recipe from him. In the end, thanks to my gifts and presents, he gave it to me; which was to boil, in oil of lilies, young whelps just born, and earth-worms prepared with Venetian turpentine. Then I was joyful, and my heart made glad, that I had understood his remedy, which was like that which I had obtained by chance.—Ambroise Paré (1537-1590).

PROGRESS IN OBSTETRICS DURING THE LAST TWENTY YEARS*

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At an obstetrical conference in 1905 the remark was made by a well known mid-western obstetrician that "the practice of obstetrics represented the hardest work, the least appreciated and most underpaid branch of medicine." At this time and prior to this period his remark was to a very considerable degree true and it may be said that a very large proportion of the responsibility for these conditions lay squarely upon the shoulders of the profession. In the past two decades conditions have improved very decidedly, and while it may be said that obstetrics has not advanced so rapidly as general medicine and surgery, yet in the past twenty years it has made most creditable progress in many important respects.

Pregnancy and parturition have for many years been considered chiefly in the light of physiological processes not only by the laity but also by a very large proportion of the profession.

We can, all of us, recall the time when a physician was engaged for a case and saw his patient but once or twice, if at all, during her pregnancy, made unrinanalyses but seldom, never took a blood pressure reading, and yet was greatly surprised and properly anxious when he found his patient in a state of profound toxemia or even actual eclampsia.

Such conditions prompted the remark that it might be wiser to "teach the practice of obstetrics more in the light of a pathological than a physiological process" and this very thing has been done to a very large degree in recent years.

There are many factors which have come to play a part in lessening the maternal and infant mortality and morbidity. Chiefly among these may be mentioned such movements as those directed toward the education of the public to the proper supervision during pregnancy and competent care at the time of confinement:—for example; the maternal welfare stations, prenatal clinics, community lectures and health talks by city and county

societies, the steadily increasing attendance at out-patient departments, the extension in the scope of activities of the visiting nurse association and various measures enacted by city, state and national bodies directed toward better supervision of the pregnant woman.

Through the courtesy of Miss Grace Abbott, Chief of Children's Bureau, U. S. Department of Labor at Washington, I have had the privilege of reading the manuscript of a bulletin not as yet off the press, entitled "Maternal Mortality—The Risk of Death in Childbirth from all Diseases Caused by Pregnancy and Confinement," compiled by Robert M. Woodbury, Ph.D.

This comprises a most complete discussion of the subject not only in the United States but also in foreign countries and contains a wealth of statistics which it would be well for every one of us interested in obstetrics to study.

I shall quote freely from the figures here given. At the present time the laity is cognizant of the direct advantage to be derived from proper care and observation and it is no longer difficult to persuade a patient to report for frequent examinations. The ever-increasing number of cases who elect to go to hospitals for confinement rather than remain at home is evidence of a keen appreciation of those unexpected catastrophies which, in the past, have all too often overtaken a difficult case in the home with insufficient help and equipment. In San Francisco 85 per cent of births are hospital cases.

The requirements laid down by the standardization program of the American College of Surgeons has had far-reaching influence in advancing the standards of obstetrical practice for the reason that it demands a careful and complete history and physical examination, a detailed report of the labor or operation and a thorough post-partum or discharge examination and follow-up report if it can be secured.

These, if recorded as they should be, make it imperative for the physician to go properly into a complete history and physical exami-

*Read at the Annual Meeting of the Colorado State Medical Society, Sept. 29-Oct. 1, 1925.

ation, urinalysis, blood pressure readings, pelvimetry, external and internal, record all examinations internal and external during labor, record the duration of the three stages of labor, nature of delivery, lacerations, hemorrhage, and condition of patient. The opposition to these requirements in the past ten years in certain sections and their final adoption is sufficient evidence of their virtue.

"At the close of the fiscal year 1924, forty states—all except Connecticut, Illinois, Kansas, Louisiana, Maine, Massachusetts, Rhode Island and Vermont—were cooperating under the provision of the Shepard-Towner Act, which makes available, if matched by state funds, federal aid for reducing maternal and infant mortality and promoting the health of mothers and infants."

Since then the benefits of the act have been accepted by Vermont, Louisiana and Rhode Island.

The measure, if properly administered, should be of the greatest benefit to the public as an educational program as well as an incentive to the profession for better cooperation, a reduction in mortality and a higher standard of obstetrical practice. Under the terms of the act each state accepting receives \$5,000.00 outright: an additional \$5,000.00 is available to each state if matched, and the balance of the appropriation is distributed among the states on the basis of population. Colorado in 1923-1924 accepted \$10,000.00.

The state activities represent such measures as infant and prenatal centers, county health units, home visits by nurses, dental hygiene, correction of defects, prenatal care, confinement care, post-natal care, inspection of maternity and infant homes, midwives, mothers classes and correspondence courses, birth registration, etc.

There are several factors which make absolutely accurate data and statistics impossible at the present time as regards mortality in the United States, chiefly among which may be mentioned the registration area, 18 of the 48 states not being included in the birth registration area in 1923. For admission to the birth registration area the returns must be at least 90 per cent complete. "Failure to reach this average can only be due to

carelessness on the part of the physician or midwife and a desire to shield the mother of an illegitimate birth." The estimated deficiency of registered births in the registration area in 1919 was 8.7 per cent.

Registration of births is difficult to enforce, registration of deaths much less so. As regards the latter, three elements of error must be considered,—(1) incomplete registration of deaths, (2) faulty certification of causes of deaths, (3) statistical errors.

"Deaths classified as puerperal include only those which are regarded as primarily caused by pregnancy and childbirth, while those to which puerperal conditions are contributory but not decisive causes are not included in puerperal mortality." In 1921 in the registration area puerperal septicaemia contributed 40.3 per cent of total puerperal deaths, albuminuria and convulsions 26.8 per cent and hemorrhage 10 per cent.

In 1920 the rate of puerperal deaths per 1,000 live births in the United States was 7.99; of these 2.67 per 1,000 live births were due to septicaemia and 5.32 to other puerperal causes. This rate was the highest of 21 countries and nearly equaled only by Chile. In 1900 the rate was 8.4 per 1,000 live births and in 1919 7.5.

The general trend of mortality from all puerperal causes has been very slightly downward, while that from puerperal septicaemia has shown a decrease of 36 per cent in the past twenty-five years. The maternal mortality rate from puerperal causes in 1900 gave total deaths at 4,106 with an estimated population of upwards of thirty million, while in 1921 there were 15,207 deaths with an estimated population of eighty-eight million plus. Hence it is apparent that our puerperal mortality rates demand serious consideration if we are to compare favorably with foreign countries and that we should earnestly strive to improve our treatment and technique.

The Government Report states that "the conclusion seems justified that the high rates in the United States both from puerperal septicaemia and other puerperal causes indicate conditions which are less favorable to safe maternity than those which are found in other countries".

That puerperal septicaemia is preventable

is shown by the facts that in the Sydney Woman's Hospital, Australia, during a period of ten years 4,000 cases were confined without a single death from this cause. At the New York Lying-In Hospital during sixteen years 8,373 deliveries took place and not a single death due to infection occurred. The Government bulletin makes the statement that "the present mortality rates for European countries are much below those for the United States. If statistics are comparable they suggest, therefore, either the measures for control in these foreign countries are more effective or that conditions under which they operate are more favorable."

"A careful study of the best methods in use in this country and elsewhere of public control over hospitals and over the licensing and practice of physicians and midwives, as for example, the compulsory reporting of cases of puerperal septicaemia, would doubtless reveal ways in which these methods could be improved."

Records regarding still-births are not accurate, due to the fact that no uniform law exists in regard to reporting still-births and no standard ruling as regard the period of utero-gestation which shall require a return of birth and death. It is estimated that 30 per cent of still-births are luetic in origin,—in certain areas only.

In the registration area in 1923 there were 69,757 still-births—a rate of 3.9 per 100 live births. The Bulletin of the Bureau of the Census gives as causes during the seventh, eighth, and ninth months of uterogestation: first, importance to diseases of the placenta and membranes; second, albuminuria and other diseases incident to pregnancy; third, general diseases including syphilis. It is interesting to note that there are many more male still-births than female.

The fact that more care is being exercised in taking histories and more care given to physical examination, as also the employment of the Wassermann test, has naturally reduced the incidence of premature still-born syphilitic babies.

'Tis well to remember the words of Frankl of Vienna that "a positive Wassermann test is reliable, but that a negative one is not;

one often finds negative reaction and yet later discovers latent syphilis in mother or child.

In prolonged dry labor, delay in the second stage, and in cases of placenta previa the routine and frequent use of the stethoscope has been a factor in reducing still-births by noting serious changes in the fetal heart rate during labor at term.

The fact that the toxemia of pregnancy, including hyperemesis gravidarum, acute yellow atrophy, preeclamptic toxemia, and eclampsia, are still undetermined as to etiology, makes their treatment entirely empirical.

As regards the theories advanced up to the present time, it would lead us too far afield to attempt their discussion.

In hyperemesis very definite advance has been made by careful observation of the cases, hospital care, regulation of hygiene and diet and the use of glucose and soda intravenously. This treatment has led to a rather general adoption of the belief as to a carbohydrate deficiency or disturbance of carbohydrate metabolism and has often prevented the advent of serious dehydration and fatal acidosis. Many report favorable use of insulin while others feel that it is not always safe with our present knowledge.*

The severe types soon show an acceleration pulse rate, subicteric tint to the skin, some albuminuria and a trace of fever. Recent years have demonstrated the value of blood chemistry as these cases soon show an increase of uric acid in the blood, normally about 2.5 mg., while in serious cases it may rise to 4 or 6 mg. per 100 c.c. of blood.

It is now generally appreciated that the laboratory offers us the greatest assistance in determining whether or not we are dealing with toxic types of vomiting rather than the so-called neurotic or reflex forms; and there is no longer any excuse for allowing a case to

*Thalheimer of Milwaukee is enthusiastic about its use in a small series of cases. He gives, very slowly, intravenously 1,000 c.c. of a 10 per cent glucose solution, or if severely dehydrated, 2,000 c.c. of 5 per cent glucose. This must be absolutely colorless after being autoclaved and of the highest degree of purity. One unit of insulin is given for every three grams of glucose. For one hundred grams of glucose thirty units of insulin are given in divided doses, twenty units one hour after beginning the infusion, and ten units after the second hour.

carry on for weeks in the hope of improvement under the old form of attack, such as cerium oxalate, soda, ingluvin, etc., until she becomes dehydrated and in no condition to withstand intervention.

A check is now made on the non-protein nitrogen, the total nitrogen, urea, and chlorides, acetone and diacetic acid, and these findings balanced with the clinical pictures which the patient presents. In the toxemia of pregnancy there is a great field for teamwork between the pathologist and the obstetrician.

In the milder types of vomiting much can be accomplished by the employment of five or six small meals daily—dry diet—and the use of helpful suggestions; most drugs are now found to be of small value. The bromides and sodium bicarbonate help some cases, others are apparently helped by corpus luteum hypodermically, possibly chiefly as a psychological factor.

Recent experience has shown that for intravenous administration solution of glucose must be chemically pure in order to avoid a severe reaction in the forms of chill following its use.

Where it is not possible to secure pure solution of glucose and soda, intravenous administration of normal salt solution may be of value.

Starvation and low fluids soon produce acidosis, acidosis increases the nausea; and a vicious cycle is easily established.

Volumes could be written on the more modern treatment of eclampsia. The most conspicuous fact and that which has done more to reduce mortality in this disease has been the final and almost universal adoption of the conservative treatment. Whereas in the earlier part of the past decade resort to Cesarean section and accouchment forcé was generally employed after one or two convulsions, with a general mortality of 25 to 50 per cent, at the present time under conservative methods this rate has been reduced to about 3.3 to 7 per cent in certain clinics in this and foreign countries. The technique of this conservative line of treatment varies in the hands of the surgeon in charge. In general it may be said that the modern plan has incorporated such measures as those directed to elimination and

reduction of hypertension and nerve irritation. These include, morphia, chloral hydrate, magnesium sulphate, veratrum viride, venesection and administration of fluids usually such as glucose and soda intravenously.

Probably no one can report such splendid statistics as Stroganoff with his 3.3 per cent mortality in the technique which employs the use of chloral hydrate. Lazard of Los Angeles has reported a group of cases treated with intravenous solution of magnesium sulphate with gratifying results. The almost immediate relief from restlessness and spasm is truly spectacular in those few cases in which I have tried it.* Most cases of preeclamptic toxemia can now be prevented by strict observation—a regulated diet, forced intake of water and magnesium sulphate taken regularly by mouth.

The taking of pelvic measurements as a routine procedure in obstetrical examination has done much to lessen the number of cases of complicated labor at term; and yet it is surprising how often this simple measure is neglected. A definitely contracted pelvis usually demands some definite treatment where it is obvious that the child's head cannot pass through a small pelvis.

One of the most complicated conditions with which the obstetrician has to deal is those cases of the so-called border-line pelvis, where there is no absolute contraction but yet the measurements are just within the low normal and in which a fairly large head fails to engage, the membranes rupturing early in or even before the onset of labor, and with the occiput in a posterior position. It is frequently too late to consider version with a dry uterus and no operation is more difficult, as well as unsafe, than a high forceps upon an unengaged head.

Much is claimed at the present time for the Kielland forceps in these cases. This forceps has a very slight pelvic curve and in

*This consists of the intravenous administration of 20 c.c. of a 10 per cent solution of magnesium sulphate soon after the first convulsion. Venesection is employed and possibly salt solution by hypodermoclysis. Either 10 or 20 c.c. of the magnesium sulphate solution is repeated as indicated by a return of restlessness or increasing blood pressure. Meltzer considers that "the action of magnesium salts is distinctly inhibitory and also selective for nervous tissue".

place of the English or French lock it has a sliding lock along which the opposite blade may slip, thus making the application of the second blade much easier, especially in posterior or transverse position of the head. Rotation is said to be facilitated and there is less danger to the soft parts. The manner of application differs considerably from that of the other forceps.

Newell of Boston suggests endeavoring to engage the head by bimanual methods, if necessary under anesthesia, before the onset of labor to determine any degree of overriding of the head at the symphysis. The x-ray has added much in the study of these cases and very often is accurate in determination of lesser or greater degrees of disproportion. Thoms of New Haven has published a report upon x-ray pelvimetry which very truly determines the outline of the pelvic inlet.

The funnel pelvis is very often overlooked until too late and has been a factor in causation of extensive lacerations and injuries to the child. Measurement of the pelvic outlet is as important as that of the inlet.

Much has been said in the past few years of the extreme importance of accurately determining the position of the head before applying forceps, and this has done much to lessen the number of cranial injuries to the infant.

Holland has made extensive study of these cases and finds that "the effect of excessive moulding transmits stress to, and is resisted by, the attached septa of the dura mater. Over-stretching results in tearing, the most common site being in the tentorium cerebelli at the junction with the falx. Finally the changes in the septa are transmitted to the vein of Galen. This vein becomes stretched so that either it, or some of its branches are ruptured, resulting in subdural cerebral hemorrhages."

Version has not received the serious attention it deserves, as in many cases of flat pelvis where the head fails to engage early in the second stage with membranes recently upturned, and in cases of face and brow presentation, also in slight degrees of disproportion, a version is surprisingly easy in contrast with the operation of high forceps. Miller of New Orleans stresses the importance of deep surgical anesthesia in version, preferably with

ether in order to obtain complete relaxation. Version cannot be mentioned without a word in regard to the technique recently perfected by Potter of Buffalo. Without doubt in his hands the operation has reached a high degree of perfection and he has devised a method of execution which is the result of a vast experience in handling many hundreds of cases; and yet it is generally conceded that it is an unwise measure for general adoption in those cases which would otherwise deliver spontaneously.

Deliberate and leisurely extraction of the body up to the appearance of the scapula or axilla at the vulva, in order to make the delivery of the arms more easily, and measures to prevent extension of the arms and head, has done much in recent years to lessen infant mortality and morbidity.

Cesarean section has probably been the most abused obstetrical operation. The pendulum has repeatedly swung far in both directions, for and against. In more recent years the careful and conscientious obstetrician has carefully weighed the condition before resorting to its use. It has its definite indication but even at this time it is often employed ill advisedly in cases long in labor with membranes ruptured and after repeated vaginal examinations and not infrequently after attempts to deliver by forceps. This can, in the long run, have no other effect than to increase the mortality from this operation.

One state in which an intensive study of statistics was made by the state society revealed the fact that "one-sixth of all puerperal deaths were associated with Cesarean section, one-half of which were due to sepsis". It is estimated that the mortality from this operation, if decided upon and performed before labor has begun, is about one-half of one per cent; if performed after labor has begun it is 5 per cent; while if performed after labor has lasted for a considerable time it rises to 10 per cent, or more.

Much has been said in recent years concerning the dictum "once a Cesarean, always a Cesarean".

In this connection the experiments of Schwartz and Paddock are interesting. From a study of the human uterus and from operations upon the guinea pig they have demon-

strated that "the edges of the uterine wound are held together by the early proliferation of fibroblasts along with capillaries not only along the line of incision but also very definitely between the muscle bundles adjacent.

"Early a definite scar is developed, but later this line of scar tissue with its ramifications is so contracted that on histologic examination it is difficult to make out and assumes very definitely the normal pattern of an uninjured uterine wall." The conclusion is drawn that in afebrile cases this process of healing adds to the strength of the scar. The caution is advanced that the sutures should not be drawn too tightly, as necrosis is more apt to occur and that this leads to an invasion of the area in question by the more rapidly proliferating endometrial tissue.

De Lee has recently advocated the prophylactic use of forceps together with episiotomy. This implies the application of forceps soon after full dilatation of the cervix in order to shorten the second stage of labor. Episiotomy is done in the belief that a clean-cut wound can be more satisfactorily repaired than a ragged tear caused by delivery of the head.

There is still much to be desired in perineal repair at the time of labor, as is evidenced by the great number of relaxed outlets noted at the time of final examination.

In order to obtain good results and avoid subsequent rectocele it is very important that the fibers of the levator ani and the layers of perineal fascia be restored as accurately as possible.

The suggestion has been advanced that an overstretched perineum caused by delay of the head at the outlet is even more likely to be followed by relaxation than an episiotomy well repaired.

In Genesis 3-16 we read "Unto the woman He said—"I will greatly multiply thy sorrow and thy conception; in sorrow thou shalt bring forth children." Surely this prophesy has been fulfilled through the ages. The various measures which have been instituted over a long period of years to reduce the suffering attendant upon child-birth have been only partially successful. For many years the so-called obstetrical administration of ether or chloroform given with pains during the second stage and particularly at the time of de-

livery of the head has done much to mitigate the suffering of the patient. Later the perfection of the gas-oxygen anaesthesia greatly increased our armamentarium and possessed the added advantage that it could be administered much earlier in labor—in many cases even in the latter part of the first stage; that the patient was soon out from under its influence during the interval between pains, thereby not materially inhibiting the process of labor, and it could be more safely used in such complications as pulmonary, cardiac, and renal, making it extremely valuable. Not many years past the world was startled by the report that painless childbirths had arrived with the advent of the technique employing morphine and scopolamin under the title of "Twilight Sleep". This was greatly featured through the lay journals and periodicals, hence many patients demanded its employment.

In a few obstetrical centres where a suitable technique has been perfected the reports have been fairly satisfactory, but Williams reports that "the desired degree of amnesia is obtained in about three quarters of the patients and that many patients become violently excited and complain bitterly with every pain"—and his opinion is that the method is not ideal and will gradually fall into disuse. It has several disadvantages among which may be mentioned that "while it slightly shortens the first stage it usually results in a prolongation of the second stage, necessitating more frequent instrumental interference"; it is also attended by an increase of from 1 to 2 per cent in the foetal mortality, many babies being born in an apneic condition and others so deeply asphyxiated that resuscitation is impossible.

Heaney reports very favorable results with ethylene-oxygen anaesthesia which is used with the same machine as nitrous oxide. He finds that analgesia is obtained more quickly and the result more satisfactory. For final pains ethylene gives complete relaxation and anaesthesia. The percentage of ethylene required varies from 80 to 90 per cent while in some cases ethylene and oxygen have been used in equal parts. Analgesia is frequently obtained on second respiration. He finds that given over long periods the strength of pains

becomes somewhat decreased and that it has been necessary to give small doses of pituitrin more often than with nitrous oxide. The breathing is not exaggerated as under ether and the patient does not sweat. It should be noted that its explosiveness calls for due caution.

Gwathmey reports a series of cases in which painless deliveries were produced by synergistic methods as follows: A cleansing enema is given and when the pains are four to five minutes apart, lasting thirty or more seconds, the rectal instillation is given. He chose cases where the dilatation was not too far advanced and conditions seemed absolutely normal. Two c. c. of a 25 per cent solution of magnesium sulphate (chemically pure) is given sub-cutaneously; morphine is added to the first hypodermic; magnesium sulphate is repeated once or twice but without morphine. The rectal instillation consists of quinine hydro-bromide, gr. 10, alcohol, drams 2, ether, oz. $2\frac{1}{2}$, olive oil, up to 4 oz. The instillation is forced into the rectum through a catheter very slowly, taking in all about five minutes—and pressure continued over the perineum for fifteen minutes during pains. His results showed 3 per cent excitement occurred, 3 per cent no marked change, 94 per cent a definite sedative action; 4 per cent of the deliveries forceps, 96 per cent normal, labor prolonged in 4 per cent. Asphyxia present in the baby 1 per cent, 2 per cent of babies apnoeic, 97 cried at once.

The greatest disgrace attendant upon obstetrical practice is puerperal septicemia and the fact that it is preventable allows of no excuse for its prevalence. Figures show that deaths from this disease increased from 5.7 in 1900 to a maximum of 7.4 in 1911, from which point it decreased to 6.8 in 1921 per 100,000 population. Deaths from other puerperal causes increased from 7.6 in 1900 to 10.1 in 1921. The fact of a slight apparent decline in puerperal septicemia since 1911 cannot be accepted as conclusive evidence of the real trend of mortality until the influence of the decrease in birth rate has been eliminated. The fact that greater care is being exercised in the execution of aseptic technique, more thorough supervision of nurses in the preparation of cases for delivery, vaginal examinations re-

stricted to a minimum and the more common employment of rectal examinations over vaginal, the elimination of post-partum douches, and a generally accepted belief in the "let them alone" policy where mild infections of the genital tract have occurred, as also the more frequent cooperation of the patient in electing the hospital for confinement where a more thorough aseptic technique can be carried out, should in the near future accomplish much in reducing our high mortality and morbidity.

Obstetrics is rapidly becoming a surgical specialty and while a very large percentage of maternity cases do not require the services of highly trained attendants, yet it is imperative that those accepting obstetrical cases exercise every precaution for the best interests of the patient and a successful delivery.

DISCUSSION

Beverly Tucker, Colorado Springs: I want to express to Dr. Cary the pleasure I have had in listening to this paper. I am sure the rest of you, particularly those of you who are interested in this subject, have had the same feeling. I don't know how I can possibly add anything to what Dr. Cary has said. In fact, I think he has left very little room for discussion. However, there is one thing that struck me when he spoke of the Kielland forceps. This forceps comes to us highly recommended, and seems to be a rather easy instrument to use. It is being recommended in high positions. To me I must confess it is rather a matter of apprehension when I think of that. Frankly, high forceps to my mind has no place in obstetrics. It has been relegated sometime ago. That is about the only criticism I can make on anything in his paper, and that is not a criticism; it is simply a fear on my part. It is rather difficult to determine in what particular branch of obstetrics the greatest progress has been made, as it is to determine in what way are we at fault in our management of obstetrical conditions, and at fault we certainly must be or Dr. Cary would not be able to give us the statistics which he has. The teaching of obstetrics has certainly improved a thousand fold, I would say, in the last twenty years, so that the young practitioner, coming out now is fully able, or ought to be, to cope with the ordinary obstetrical situation, and much better than some of us that have been practicing thirty-five years. The management of the pregnant woman has certainly improved in many ways. She is under much more careful observation. Blood pressure, which was not known until perhaps ten or eleven years ago, is one of the routine examinations which were rather carelessly done, and which has become absolutely necessary. The entire hygiene of pregnancy has become a profound study, and while in toxemia we have not made perhaps the same progress, I think the outlook is more favorable, particularly in eclampsia. So far as aseptic management technique is concerned, that has been developed to a most high degree of excellence, so that I think our men in this country undoubtedly

compare most favorably with any on the globe. But in spite of those favorable things, your teaching, the improvement of prenatal hygiene, the improvement in the technique at the time of confinement, the excellence of the operative technique, we are still faced with the mortifying fact that the United States stands about thirteenth or fourteenth in comparison with other nations in the obstetrical record. If I remember correctly, there are only two or perhaps three nations that occupy a lower position than ourselves. As to the remedy, I don't know. It seems as though it might be approached in two directions. Education of the laity, to my mind, seems to me to offer the greatest possibility. If the laity, and I am not saying this or confining this to the laity entirely, but if the laity and others could be made to realize that pregnancy is more often a pathological than a physiological process, I think it would be a great step forward. This can be brought about by the establishment of prenatal clinics and by lectures given by the County Society or by other members who are particularly interested.

T. Mitchell Burns, Denver: One or two points I want to bring out with reference to Dr. Cary's excellent paper. In speaking of asepsis, I think better repair work has much to do with the lessening of infection. Another advancement is the marked success of operations during the pregnancy and following labor. There is a marked improvement in the use of analgesia and anaesthetics, that is, they are used much more successfully and carefully than they were. In reference to prenatal care, I tell my patients to come and see me when there is anything wrong with them. The visiting nurse is just "butting in" when she goes to see them, unless she finds them in some abnormal condition. Her idea is to refer them back to the physician. They tell me they don't even dare examine the urine, or anything like that, because the physician might not like it. I think their duty is to tell the patient that they should go and see their physician, if there is anything wrong with them, and if the physician doesn't do anything, they ought to get another physician. I believe at this time I can say without any fear of criticism that obstetrics ought to be practiced by specialists, and one of the great faults is that there are a great many, I am sorry to say, that practice obstetrics for the money that is in it. They feel that they will lose a patient if they don't take care of her in their confinement, or they want to get a little extra increase in salary. They practice obstetrics, not because they are interested at all, but from a financial standpoint entirely.

C. B. Ingraham, Denver: I enjoyed Dr. Cary's resume of this subject very much. There has been a great deal of advance in obstetrics in the last twenty years. We have at times been very enthusiastic in certain conditions, which have not represented an advance, for example resorting to Cesarean Section in eclampsia. The pendulum is now fortunately swinging the other way. Many have resorted to podalic version for a delivery which would ordinarily turn out to be a normal labor. This procedure causes a high foetal mortality. There are too many deaths from the indiscriminate use of pituitary extract. The fact that we have such a high foetal mortality compared with other countries must depend upon educationally trained. This specialty is often relegated to the younger man who has not had experience and starts his practise through this work. As Dr. Burns said, this branch should be done by

a specialist, at least it should be done by one who is properly educated along this line.

J. M. Anderson, Cheyenne: As to why we happen to be the seventeenth in rank in maternal mortality, it has not been worked out, but there is some suggestion which the last speaker made as to the foreign countries being ahead of us, except Turkey and Mexico. Now, that is a delightful thing to contemplate, isn't it, that the great American Nation is just above those two? If you remember, I attended a certain conference two years ago with Dr. Noble, the head of the Pennsylvania State Department of Infant Welfare, where a paper was read before all these physicians in regard to the subject, and we just had to sit there and take it. The mortality rate of all the cases attended by physicians and all the cases attended by midwives and others was analyzed, and the mortality rate of physicians was twenty per cent higher than the mortality rate of the midwives.

Dr. Cary (closing): I am very grateful for this discussion. I think this question of obstetrical mortality is something that requires serious thought and action in some way. Just how to get at it we do not know. The entire nation has fallen down on this for years past and I think we have a large job on our hands. As has been mentioned by all those who have taken part in this discussion, it must be a matter of education. We must educate ourselves first, the students, and the laity as well. There is no doubt but that, as I said in the paper, obstetrics has been looked upon more in the light of a physiological than a pathological process. Many patients say that they get along perfectly well in the home and that there is no reason why they should not remain there again, but any one of us who has had an unfortunate experience in the home knows differently. I recently had a difficult case where the patient was forced to go to an institution. The husband was present at the delivery and when we had finished, I said "Now do you understand why we like to have these cases in the hospital?" And he promptly replied, "I most certainly do." The fact that only 9 per cent of the cases in New Bedford are hospital cases, the rest being confined at home, and the fact that in San Francisco 85 per cent of the cases are born in hospitals indicates that there is an appreciation of hospital technique amongst the people out there which those in the East and Middle West do not possess. This paper could go on for hours in regard to recent changes in obstetrical technique which time would not permit covering. As regards anaesthetics, considerable progress has been made in this line. As regards operative interference, I well remember one of the older men under whom I worked, being very conservative, sometimes unnecessarily so, another more radical, and I have thought many times if it were possible to get a composite of the two, it would give a very accurate idea as regards interference in difficult cases.

The Loser

Can you lose in the fight you wanted to win,
That you wanted to win most of all?
Can you see that you're beaten when first you
begin
And the castles you've built start to fall?
Can you lose to some chap who has beaten you fair
And call him the winner and then—
Can you stand up and say, "Well, I lost out today,
But tomorrow I'm starting again?"

—Columbus Citizen.

SYSTOLE

Who waits for time, loses time.—Italian Proverb.

Don't kiek till ye'r spurr'd.—Irish Proverb.

Ane at a time is guid fishin'.—Scotch Proverb.

This tomorrow of yours lasts for ever.—Spanish Proverb.

A good reputation sits still, a bad one runs about.—Russian Proverb.

Even to an ant, death is sufficient suffering.—Proverb of Hindustan.

We live in our desires rather than in our achievements.—George Moore.

What harm is there in a good word? It costs nothing.—German Proverb.

All truth, in the long run, is only common sense clarified.—Thomas Huxley.

Science is, I believe, nothing but trained and organized common sense.—Thomas Huxley.

My experience of the world is that things left to themselves don't get right.—Thomas Huxley.

The mind of a good man doth not alter, even when he is in distress.—Sanskrit Proverb.

You don't get the best out of a man until you appeal to the best there is in him.—F. W. Hamilton.

The only people, scientific or other, who never make mistakes are those who do nothing.—Thomas Huxley.

DIASTOLE

"Is the doctor an oculist?"

"No. He's an inoculist."

"The waiter at the summer hotel was so thoughtful. He always served little Willie's finger bowl before dinner instead of after."

"Why did the heart specialist charge you five dollars more than his regular fee?"

"He said I had an extra systole."

The old doctor says Miss Footlights has acute lumbago, but his young assistant says she has a cute ankle.

"That's a big, powerful car she's driving."

"What makes you think so?"

"The gears change with such a crash."

Getting a Term. "What's the matter, Picklock?"

"I told that young saphead of a lawyer to prove an alibi, and he went ahead and proved an alias!"

After all, there may be something in heredity. The other day we heard a man complain, "That kid of mine is beginning to swear I can't imagine where in hell he gets it."

A preacher friend of ours says that he has been called to another city with an increase in salary from three thousand to six thousand dollars. Apparently the cleries make no distinction between a call and a raise.

Misplaced diastoles give the editor many an auricular flutter. Recently our proof described an eminent gentleman as a Member of the Board of *Disectors*. The printer, still in ironical mood, suggested that malnourished babies be given complimentary feedings. Our horror was complete when we read that a medical meeting had been held with Dr. So-and-so *on* the chair.

NEWS NOTES

A baby daughter was born to Dr. and Mrs. J. F. Prinzing, October 3.

Dr. W. F. Matson has returned from an automobile trip through the Adirondacks and New England States.

Dr. S. D. Van Meter has returned from an extensive trip through Europe.

Dr. Horace Wetherill recently spent several weeks among his friends in Denver. He has now returned to Monterey.

Dr. Harry Gauss, who was recently at the Mayo Clinic, is now continuing his post-graduate studies in gastro-enterology at Vienna.

Dr. F. H. Zimmerman, recently of the State Hospital at Pueblo, is now medical superintendent of Mount Airy Sanitarium, Denver.

Dr. Virginia Van Meter has accepted an appointment on the staff of the Woman's Hospital of New York City.

Among the Colorado men who attended the Inter-State Post-Graduate Assembly are Dr. J. C. Struthers and Dr. Paul Connor.

Dr. Chester Elliott has accepted a full time appointment with the Department of Pathology of the School of Medicine of the University of Colorado.

Dr. C. D. Rilance is taking a brief post-graduate course at McGill University.

Drs. D. H. Coover, J. M. Shields, and W. M. Bane attended the Academy of Ophthalmology and Oto-Laryngology at Chicago.

Dr. R. G. Packard and Dr. H. S. Finney have mailed the editor from Juarez a picture postcard depicting "the most beautiful cafe in Mexico." It is gratifying to see the enthusiasm with which these two bright young members of the society pursue their sociological researches.

NEED FOR TEACHING MATERIAL

The few responses obtained from the notice published in this column in the last issue has encouraged the Faculty of the Medical School of the University of Colorado to call attention again to the need for teaching material. If the medical men of this State and also Wyoming will bear this institution in mind whenever they have available any material, in a short time its Museum will be greatly enriched. Specimens of tissue, parasites, pictures, etc., will be welcome, and the donors will receive due credit. Help of this sort will aid the establishment of Denver as a post-graduate center.

Specimens can be directed to E. R. Mugrage, 4200 E. 9th Ave., Denver, and will be duly acknowledged; also any inquiries as to shipping directions, means of preservation, etc., will be promptly answered.

"Expert Testimony"

If some arrangement could be made by which a group of three prominent specialists in this line, agreed upon by attorneys for the two sides, and whose honoraria would be paid by the court, would supply all the "expert testimony" in any case, an "appearance of evil" would be removed, the medical profession would be saved much humiliation, and the cause of justice would be materially advanced.—Southern Medicine and Surgery.

DAVID ERNEST HOAG

David Ernest Hoag was born June 10, 1882, in Kansas City, Kansas. His academic schooling was received in Kansas City, Missouri.

He graduated in medicine from the Kansas City Medical College in 1906, and from the University of Maryland in 1908, and was licensed to practice in Colorado in 1913.

After his graduation, he engaged in general practice in Chester, Iowa, for about two years, coming to Pueblo in 1910, and serving a two year internship in the St. Mary Hospital, after which he spent about one year in Europe. Upon his return to Pueblo, he practiced Anesthesia exclusively. His keen sense and judgment, together with his aptitude for his specialty, made him one of the outstanding anesthetists of the country.

He was a member of the Pueblo County Medical Society, being its secretary at the time of his death; member of the Colorado State Medical Society; Fellow of the American Medical Association; an enthusiastic member in the organization of Pueblo Clinical and Pathological Society, having served twice as its secretary and once as its president; member of the Association of Anesthetists of United States and Canada, having been honored as vice-president of the Association, and president of the western section of the same, retiring as such in 1922.

He was of the highest character, his manner pleasing and inspiring confidence.

He died September 18, 1925, in Pueblo, Colorado, age 43 years. His remains were interred in Mt. Washington Cemetery, in Kansas City, Missouri.

CRUM EPLER.

HENRY ALVIN CALKINS

Dr. Henry Alvin Calkins died at his home at Leadville, Sunday, September 27, following a brief illness from pneumonia. He was 56 years of age.

Dr. Calkins was born near Merton, Wisconsin, November 7, 1869. He was brought to Denver by his parents in 1871, one year after the establishment of railroad service into the city. At the time of his death he had been a resident of Colorado for 54 years.

He spent his childhood and young manhood on his father's ranch near Denver. He graduated from the Colorado Agricultural College with the class of 1895. Later he attended the Gross Medical College from which institution he received his degree in 1901. After a year's internship at St. Luke's Hospital, he opened an office at Leadville, where he practiced continuously for 23 years. For the past 12 years he held the position of city physician.

Dr. Calkins is survived by his widow, May Whitmore Calkins, and three daughters, Mary, Emily, and Jeanette, all of Leadville; also by two brothers, J. S. Calkins and Royal T. Calkins of Westminster.

Vision of School Children

One child out of every eleven in the public schools of American cities and one child out of every seven in the schools of rural districts in the United States have such seriously defective vision as to be handicapped in their school work.—National Committee for Prevention of Blindness.

MEDICAL SOCIETIES

DELTA COUNTY

The members of The Delta County Medical Society, their wives and daughters were entertained at Montdel, the country home of Dr. A. C. McClanahan, Friday evening, August 28th.

The doctors present were Dr. Hick, President; Drs. Smith, Bast, Day, Cleland, C. H. Burgin, McConnell, Shaffer, J. F. Burgin, Erich, McClanahan, Meyers, McArthur; visitors, Dr. Winningham of Missouri, Dr. Martin of Kansas and Drs. Stockham and Grove of Delta.

Motion carried to have several members write to Senators Means and Phipps, also to Congressman Taylor, in reference to framing the new revenue law, asking for an exemption of medical meeting and post-graduate expense in computing income tax returns; also, revision of the Harrison Narcotic Law fee.

Motion carried that the County Society officially take part in entertaining Dr. Joseph Beck of Chicago, guest of Dr. Smith, next month.

Motion carried to thank the County Commissioners for their promptness in repairing the roads so the meeting could be held Friday night.

An invitation was accepted from Dr. A. H. Stockham and Mrs. Harry Stockham to entertain the County Society at their homes in September.

Papers of the session: "Tularemia," by Dr. L. A. Hick and "Newer Aspects of Cancer Research," by Dr. H. A. Smith.

General discussion followed. Papers for the next meeting: "Appendicitis," by Dr. Erich, "Puerperal Infection," by Dr. Shaffer, and "Enuresis," by Dr. McClanahan. A rising vote of thanks was extended to Dr. and Mrs. McClanahan for the evening's entertainment.

The regular monthly meeting of The Delta County Medical Society was held at the home of Dr. A. H. Stockham on Garnet Mesa, Friday evening, September 25th.

Members present, Dr. Hick, presiding; Drs. Bast, Miller, J. H. Burgin, McClanahan, Shaffer, Cleland, McArthur, Day, Stockham, Smith; visitors, Mrs. Isam Burgin, Dr. W. H. Fluallen.

Minutes of the last meeting read and approved. Moved and seconded that Dr. A. H. Stockham's membership be re-instated in The County Society on payment of current dues.

Paper by Dr. Shaffer on "Puerperal Infection"; also, paper by Dr. McClanahan on "Clavus." General discussion both papers.

Papers for next meeting: "Management of Mis-carriage," by Shaffer; postponed paper by Dr. Erich on "Appendicitis" to be read at next meeting. A vote of thanks was extended to Dr. A. H. and Mrs. Harry Stockham for the evening's entertainment. Place for the next meeting to be decided later.

HARRY A. SMITH, Secretary.

COLORADO GENERAL HOSPITAL

This institution has been under the direction of the new Superintendent, Dr. E. A. Bocock, the past month and the following report gives an idea of the activities which center at his office.

With the increasing familiarity on the part of the Board of County Commissioners, and the physicians, in the different localities regarding admission procedures, the number of patients sent to the institution for observation and treatment, while not surpassing previous months, has

maintained a gratifying rate throughout September, although it has been generally conceded that the past month has been an exceptionally healthy one.

Patients in hospital September 1st.....	65
Number of patients admitted during month.....	109
Number of patients discharged.....	119
Number of deaths	4
Patients in hospital October 1st.....	51
Number of counties represented.....	14

Of the cases admitted, the greater number were women and children and many more than half paid part or all of the actual expenses. Eighteen cases entered were classified as emergencies.

During September 19 major and 35 minor operations were performed by the Hospital Staff. To assist the Staff is a corps of six interns and one resident physician.

As usual, the Out-Patient Department continued very active in spite of the generally healthy condition prevailing in the city and among the clinic class of people. During the month 1,909 old cases and 516 new patients were admitted, or a total daily average of 101 individuals received care and attention. Heading the list the Medical Service treated a daily average of 21 patients; the Eye Clinic 14 patients; Ear, Nose and Throat 13 patients, Gynecology 10 patients, and the other Services fewer numbers.

"In general, marked activity was shown and progress noted in the administration of the institution, and with succeeding months it is believed that this will continue so rapidly that within a reasonable length of time the limits of the institution will be reached, or even overcrowded."

Colorado Psychopathic Hospital

Parallel with the activities as reported for its sister institution, the Colorado General Hospital, there has been a steady upkeep in its work which from its very nature is not so influenced by seasonal variation of health conditions. A resume of activities since its beginning shows an admission of 235 patients from 35 counties of the State; 215 have been discharged and 15 committed to the State Insane institution at Pueblo.

For the month of September the Office of Director has given out this data:

Number of new patients admitted.....	49
Counties represented	16

The Out-Patient's Department of this institution has taxed the attendants to keep up with the continuing growth. There were during the month 187 cases treated, 26 of whom were new patients and of these a considerable proportion were children.

In connection with the above activities is the care of cases undertaken at the request of the Juvenile Court and other Courts of Justice in the State. This institution affords a place for the study of the mental status of backward children and individuals of criminal tendencies which is being used more and more as these advantages are realized.

E. R. MUGRAGE.

SARSAPARILLA

The sarsaparillas had a wonderful effect upon the mind. The active ingredient in them was not the medicine on the inside of the bottle, but the printer's ink on the outside, and the still larger amount of printer's ink that was administered through the eyes of readers of the newspapers as well as the special advertising literature, the almanacs and the like which were issued and the testimonials which were distributed.—James J. Walsh, in "Cures."

MAGAZINE ARTICLES

- AESCULAPIANS OF EARLY CALIFORNIA.** By George D. Lyman, M.D. Overland Monthly, October.
- WHAT PRICE BABIES?** By Alida S. Walkers. Pictorial Review, October.
- BEFORE SIX.** By Mary Ross. Survey, October 1.
- SCARLET FEVER.** By Dr. Matthias Nicoll, Jr. Delineator, November.
- THE BEST CURE FOR NERVOUSNESS.** By Harvey W. Wiley, M.D. Good Housekeeping, October.
- DOES THE BABY SEE?** By Charles Gilmore Kerley, M.D. McCall's, October.
- THAT INFERIORITY FEELING IN CHILDREN.** By George K. Pratt, M.D. Modern Priscilla, October.
- DON'T ACCEPT INFERIORITY.** By Fielding H. Yost. Delineator, November.
- QUACKERY AND ITS PSYCHOLOGY.** By Edgar James Swift. Scribner's, October.
- WHY PICK ON DAYTON?** By W. O. McGeehan. Harper's, October.
- EVOLUTION: A RECENT FRENCH CRITICISM.** By Bertram C. A. Windle. Catholic World, October.
- THE ORIGIN OF LIFE.** By E. E. Free. Forum, October.
- STEPS TOWARD THE CONQUEST OF LEP-ROSY.** By James A. Tobey. Current History, October.
- POISON GAS FOR HOME USE.** By William G. Shepherd. Collier's, October 17.
- HOW TO HANDLE TEMPER TANTRUMS.** By Dr. George K. Pratt. Designer, November.
- WHITE MAGIC AND BLACK.** The Jungle Science of Dutch Guiana. By John W. Vandercook. Harper's October.

NEW BOOKS

- PROCEEDINGS OF THE INTERNATIONAL CONFERENCE ON HEALTH PROBLEMS IN TROPICAL AMERICA.** Held at Kingston, Jamaica, B.W.I. July 22 to August 1, 1924. Boston. Published by the United Fruit Company.
- PHYSICAL DIAGNOSIS OF DISEASES OF THE CHEST.** By Joseph H. Pratt, A.M., M.D., and George E. Bushnell, Ph.D., M.D. Philadelphia and London. W. B. Saunders Company.
- 1924 COLLECTED PAPERS OF THE MAYO CLINIC, ROCHESTER, MINNESOTA.** Octavo of 1331 pages. Philadelphia and London. W. B. Saunders Company.
- MALARIA.** By W. E. Deeks. Pamphlet. Boston, Mass.: United Fruit Company. Its cause, prevention and cure.
- THE TREATMENT OF HAEMOGLOBINURIC FEVER WITH CAFFEINE SODIO-BENZOATE.** By A. A. Facio. Pamphlet. London: John Bale, Sons & Danielsson, Ltd. A pamphlet by two physicians connected with the United Fruit Company, Port Limon, Costa Rica.
- LINKING SCIENCE AND INDUSTRY.** Edited, with an introduction by Henry C. Metcalf. 12mo. Baltimore, Md.: Williams & Wilkins Company. \$3.50.

BOOK REVIEWS

Diet in Health and Diseases. By Julius Friedenwald, M.D., Professor of Gastro-Enterology in the University of Maryland School of Medicine, Baltimore; and John Ruhrah, M.D., Professor of Diseases of Children in the University of Maryland, Baltimore. Sixth edition, thoroughly revised. Octavo of 987 pages. Philadelphia and London; W. B. Saunders Company. 1925. Cloth, \$8.00 net.

This new, sixth, edition treats, as its name indicates, very exhaustively and thoroughly the subject of diet in health and disease. One sometimes thinks that in some disease the diet plays a small factor, but as one reads this text he is impressed with the importance of diet in nearly every disease. For instance, in tuberculosis, a most analytical study is made of the various foods. It is shown what foods present the least possible difficulty in assimilation and the highest caloric value, hence the most useful in such an exhausting ailment.

There are added in this edition subjects which are newly treated. These sections are particularly those on food poisoning, carotinemia, anaphylaxis. There is a large portion of the work which treats of infant feeding. Of course, diseases of the stomach and intestines are dealt with at length with the diets for the various types of these diseases. A revised diet in hyper-tension, nephritis, rheumatoid arthritis, vitamins, deficiency diseases, is given. Post-operative diets and diabetes are elaborately discussed, and the use of insulin is detailed. And of course this means the proper diet to be used in conjunction with the use of insulin.

It seems to the writer that this is one of the most valuable works of its kind now available.

A. MINNIG.

Principles of Surgery for Nurses. By M. S. Woolf, M.A., B. Sc., M. R. C. S. (Eng.), L. R. C. P. (London), Instructor in Surgery, University of California Hospital, San Francisco 12 mo. of 350 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1925. Cloth, \$3.00 net.

A well written and illustrated book, which covers its subject in a very comprehensive manner. The introduction has a very good historical note on the history of medicine, probably after Garrison. Some of the chapters are unusually good,—inflammation, special infection, shock, tumors, and anesthesia. The illustrations in the chapter on tumors are so clear that a mental picture would almost make a diagnosis. As a whole, for the average nurse the writer has delved a little too far into pathology and diagnosis. This is most noticed in the chapters on Diseases of the Alimentary Tract, Diseases of the Breast, Thyroid, and Lymphatic Glands, Diseases of the Brain and Spinal Cord, and Diseases and Injuries of the Eye. The summaries at the end of each chapter are so complete that they would be ideal for reference work. In fact, the book as a whole is an ideal reference book for nurses, or would be invaluable for nurses whose work is strictly surgical, and who desire to study along this particular line.

J. E. STRUTHERS.

Colorado Medicine

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EDITORIAL NOTES AND COMMENT

Introducing the Editor

This issue of Colorado Medicine closes the twenty-second volume, and with it the term of office of the present editor.

We retire now to private life, no more to expose the nakedness of our mind in public print.

The succeeding editor—the adjective is propitious—is Dr. C. F. Kemper, a physician of repute. Dr. Kemper commenced his professional career as an ecclesiastic, but shortly realized that as men's hearts are reached through their stomachs, so their souls may be most effectually attained through their livers. He thereupon turned to medicine, in which field he has continued his endeavors in human uplift. It is barely possible that his future reformatory efforts may touch the membership of this Society, but in any event his success as an editor is assured.

We raise our ink pot to Dr. C. F. Kemper, connoisseur of commas, who writes with a splutter-proof pen.

Erythrocyte or Parasite?

The theory is suggested by Mr. Needham of Cambridge that back in early evolutionary times the red corpuscles were free swimming cells, which in their search for food invaded the circulatory systems of our aquatic ancestors. Finding nitrogenous material in abundance, they made themselves at home, and with the host established a symbiosis.

A system closely corresponding to this hypothetical scheme is found in certain sea-worms. The worms are invaded by algae,

which live on the protein products of their hosts, and in turn prepare carbohydrates through the action of sunshine on their chlorophyll. When the plants fail to keep up the food supply, the hosts digest the vegetable invaders, though in so doing they compass their own destruction. The process is analogous to pernicious anemia.

Color-Blind Birds

Dr. H. Erhard of the University of Munich has conducted some experiments in bird vision. His conclusions are that birds which fly by day are very little sensitive to the short waves of the spectrum; they therefore see everything in orange-red light. Night birds, on the contrary, are insensitive to the long end of the spectrum, and see everything in bluish tints. The difference in vision between day birds and night birds is due to a screen of oil globules in the retina, which acts as a color filter.

An interesting corollary is that the theory, if correct, would invalidate Darwin's supposition that birds are influenced by the beauty of plumage in selecting their mates.

Death by Lightning

According to Dr. Arthur W. Gilbert, Massachusetts Commissioner of Agriculture, fear of lightning is out of all proportion to the danger from it. The chance of death from this cause is less than one in a million. In five years only 19 people in Massachusetts died from lightning stroke, an average of 3.8 persons a year.

The survey indicates that the farmer is

ten times as likely to be struck by lightning as his city brother. This is due to the scarcity in rural communities of steel-framed buildings, trolley wires, etc., which relieve electrical tension. He is equally safe, however, according to the investigator, if his house is properly equipped with lightning rods.

Fellow Mortals

"Our Fellow Mortals", the organ of the Scottish Society for the Prevention of Vivisection, has discontinued publication after a run of eleven years. In her farewell editorial, Louisa Innes Lumsden "trust that 'Our Fellow Mortals' has helped the cause of justice and kindness to the creatures who, like ourselves, owe their existence to the Divine Will and are our companions on this earth." Apparently the funds of the society are getting low, for a dog's bazaar is to be held in December. Contributions are to be sent to Miss Ivory.

The Role of an Egg Shell

According to a group of German scientists, the shell of an egg acts as a source of calcium supply for the developing chick embryo. A freshly-hatched chick contains five or six times as much calcium as the inside of the egg from which it was originally derived. The explanation is that the calcium is dissolved from the shell and made available to the embryo through the action of carbonic acid and water formed in the process of incubation.

Sulphur and Insulin

Working with insulin, investigators at the California Institute of Technology were able to purify the commercial product till its potency was increased four or five times. When the concentrated insulin was treated with sodium carbonate, sulphur separated out and the insulin lost its potency. Sulphur therefore appears to be one of the elements of insulin, and the question arises whether the pancreas may not be dependent upon a sufficient supply of sulphur in order that it may produce its hormones.

Ultra-Violet Light and Insulin

At the University of Missouri insulin was placed in an atmosphere of nitrogen to prevent oxidation, and then exposed to ultra-violet light. Exposures of less than four hours increased the potency of the insulin; longer exposures decreased it. With protracted exposure the action of the insulin seemed to be reversed, so that it increased blood sugar instead of diminishing it.

Antiseptic Rays

The ultra-violet ray is now so much the rage that we may shortly regard it with suspicion.

From Paris comes the explanation that the germ-destroying action of sodium hypochlorite is not due to oxidation, but to emanation of ultra-violet rays.

Water contaminated with colon bacilli was exposed to the "action" of sodium hypochlorite, from which it was separated by quartz tubes. Almost uniformly bacterial counts made at the end of twenty-four hours showed fewer colonies than were present in the controls.

Oiling Mosquitoes

When mosquito larvae were found to be destroyed by spraying oil on water, it was naturally supposed that the larvae were smothered to death. Dr. David Keilin has investigated the matter at the Molteno Institute in South Africa, and has arrived at a different conclusion. He finds that the breathing tubules of the larvae secrete a fatty substance, which excludes water. When the fat is dissolved by alcohol, chloroform, or oil, water enters the tubules and the wigglers are drowned.

A New Jersey Enterprise

New Jersey is the first state to starve mosquitoes to death, according to Dr. Rudolfs of the State Agricultural Experiment Station. The mosquito larvae, it appears, feed on minute forms of vegetable and animal life. This food is destroyed by chemicals placed in ponds and creeks, and the larvae consequently starve before they are sufficiently developed to leave the water.

Instability in Children

At the recent meeting of the British Association for the Advancement of Science, Professor Cyril Burt declared that approximately one-tenth of all school children are emotionally unstable, and that one per cent are a potential menace to themselves and the public. A systematic program for the training of the emotionally unstable child is one of the needs of our educational scheme, says this investigator.

Sparing the Rod

According to Professor Ellsworth Faris of the University of Chicago, punishment of children is practically unknown among primitive tribes. Children are trained by means of folk tales that present the moral and social code. They learn these legends in the family circle or receive them from elders of the tribe who are entrusted with their instruction. When disobedience occurs, it is stopped by gentle ridicule or by religious ceremonies, which often take the form of fasting. In ten years observation of the native Bantus of Central Africa, Dr. Faris did not observe a single case of child punishment.

The Superior Monoglot

Psychological research workers of the University College of Wales find that children who speak both Welsh and English are apparently mentally inferior to the child who does all his talking and thinking in a single language. Urban and rural groups were examined, and the children were tested for right-handedness, rhythm, etc., as well as for general intelligence. Almost uniformly the bilingual children appeared to be inferior.

The Subnormal Negro

Educators from the University of Denver have made mental tests of negro children in the grade schools of two Texas cities. They find 87 per cent of the negro children to be retarded. The mentality of these children is two and a half years below that of white children.

The Biology of the Flapper

Dr. Margaret Mead has been appointed by the National Research Council to study the adolescent girl in Samoa. According to the doctor, the girls of the islands of the central Pacific are still uninfluenced by modern tendencies, and a study of young Samoans in their native surroundings may throw light on the origin of various character traits, and help solve the problem as to where the modern flapper gets her "line."

New Zealand Babies

A new world record in infant mortality was established by New Zealand in 1924, the rate being 40 per thousand live births. The death rate among babies under one month was 24 per thousand, a decrease of 5 per cent in the average for the preceding five years.

National Examining Board

The certificate of the National Board of Medical Examiners is now recognized by thirty-three states and by Porto Rico and the Canal Zone. Ten applicants took the examination in 1916, when the Board was first founded; the number of candidates examined in 1924 was 978. The total number of candidates examined since the inception of the Board is 2,212; of these 78 per cent have passed.

Rats

The rat population of the country is estimated at 120,000,000, or approximately equal to the human population.

Rats breed rapidly under favorable circumstances, and 3,800 rats have been bred in 16 months from a single pair of ancestors. The potential offspring of a pair of rats over a period of ten years is estimated at 2,300,000,000,000,000, or 2.3 quintillions.

EDITOR'S JOYS

It's great to be an editor,
To sit up late at night,
And scratch your wool,
And throw the bull,
And write, and write, and write.
—Exchange.

RHEUMATISM*

CARROLL E. EDSON, A.M., M.D.

DENVER, COLORADO

Most of the many pathologic processes which have been called rheumatic, in the past, can now be easily differentiated by any careful observer; and in the interests of accuracy and medical progress ought to be called only by their correct names.

This larger number is made up of the myalgias, the painful disturbances of fibrous tissue in muscle and tendon sheaths, in synovial bursae, of neuralgias and neuritides, of the various toxic disturbances from foci of infection elsewhere in the body than the periosteal inflammations, as that from infection with the gonococcus, of the true joint infections by specific microorganisms, as the staphylococcus, the pneumococcus or the tubercle bacilli; and lastly, of the large group of the arthritides, which are more or less chronic or progressive: of toxic, septic, nutritional or of unknown origin, whether they are atrophic or hypertrophic in character. All these are, if sometimes of undiscovered etiology, of clearly defined pathologic nature; and they are *not rheumatism*.

With this large and interesting group this paper does not deal. I am concerned only with that apparently smaller number of cases, characterized typically by sudden onset, pain, swelling and redness about one or more joints: a painful state which jumps from one point to another without apparent reason, which is accompanied by fever and sweating, which is remarkably relieved by sufficient doses of salicylates or their equivalents, and which is prone to be followed by lesions of the heart.

To this group alone should the term rheumatism be applied at present; and this only with the full appreciation that it is but a symptom group name, which will doubtless some time be replaced by a better definition. It is to emphasize the importance of remembering that we are dealing with a rather wide group of pathologic processes and symptoms that I ask your attention to some few phases of our present knowledge of this disease,

which is commonly called acute rheumatic fever, or acute articular rheumatism.

First as to the names by which we all recognize it. Do not be misled by the word "acute" as connoting either severity or suddenness. The process, it is true, may be abrupt and violent in its onset, with high fever and great pain; but it may be as insidious and, so far as outward signs go, as slow, as a beginning tuberculosis, or a neurasthenic breakdown. Nor is the mildness of the beginning disease a measure of its menace, as I will call to your attention in speaking of the pathology. Equally, the word "fever" has resulted, I feel sure, in many a case being overlooked at the important period of its incipency. The elevation of temperature may be so slight as to attract no attention, and even if discovered, may be thought to be negligible—a most serious error in our care of the patient.

In spite of the fact that the majority of cases have little or no constant elevation of temperature, it is well to retain for the present the name rheumatic fever. It carries a clearer idea of the probable unity of the group; and by its use we can more easily secure the appreciation of the patient or parents as to the seriousness of the disease invasion.

The etiologic agent of this group disease is at present not known. While many facts suggest a diplo-streptococcus as the cause, and several strains have been isolated by Rosenow, —who suggests an anaerobic type,—none have been proved constant; nor has the typical disease been reproduced in the lower animals.

Poynton, in his Bradshaw Lecture of last year, suggests the possibility that we are dealing with a diplo-streptococcus plus some filter-passing virus not yet isolated, but of primary importance. Certainly, however, some predisposing factors of heredity, climatic and seasonal changes in humidity, damp dwellings and nervous strain, can not be entirely eliminated.

That the port of entry is through the tonsils, or upper respiratory tract, is strongly suggested by several facts of common recogni-

*Read at the Annual Meeting of the Colorado State Medical Society, Sept. 29-Oct. 1, 1925.

tion. Lambert, in 1919, called attention to the lessened incidence at Bellevue Hospital, due to better care of the throat, nose and teeth. There was a decline in the incidence of rheumatic fever in the British Army, from 14.28 in 1914 to 9.35 in 1921, with a similar suggestion that care of teeth and tonsils played a part; though the change from old, long-used barracks to the open life of campaign service must not be forgotten. Neither was there a corresponding drop in the cases of cardiac infection,—a most suggestive fact to be spoken of later.

Another feature not to be discarded is that of a certain periodicity in the morbidity of this disease, which may account, in part, for the decline noted by Poynton and Lambert. Last winter, for instance, the hospitals in Boston cared for more cases of acute rheumatic fever than for many years.

The association of acute tonsillitis, rheumatic fever, endocarditis and chorea minor has long been noted clinically, and has suggested a common etiology. More recently, detailed study of the histopathology of the lesions in these various diseases has strengthened the conviction that they are but phases of one general infection.

The typical, special lesion of rheumatic fever, the Aschoff body, a submiliary nodule in the myocardium,—usually in close relation with small blood-vessels, showing a central area of damaged tissue surrounded by proliferative cells of a giant cell type,—is in every respect duplicated by the subcutaneous nodules, so often unnoted because not looked for, owing to their association with the deep fascia and the tendon sheaths. A participation of the small blood vessels, both endothelially and in the perivascular area, is one of the most marked features of the subcutaneous nodules.

Now, in the common lesions of the heart valves, which we have been trained to think of as an endocarditis,—there are seen, even in young lesions, under the endocardium, in the substance of the valves, distinct evidence of inflammation which is not exudative, but proliferative.

These inflammatory changes about the small vessels, in valve or in heart wall, may occlude by pressure, or be associated with endothelial proliferation and thrombosis, leading to small

areas of ischaemic malnutrition in the neighboring parts.

Similarly, in cases of chorea, thrombi, endothelial proliferation and perivascular collections of round cells are found about the small vessels in the parenchyma of the brain.

The signs commonly met with in the joints—redness, heat and oedema—are only more obvious because of an intense tissue response. The exudation is obvious, but can quickly disappear.

In the peri-articular tissue, however, small disseminated lesions, similar to those in the heart, the brain and the subcutaneous tissue are found, which are slow to be absorbed.

The bearing of these facts on our understanding of the disease is summed up most excellently by Swift in a recent paper.¹ I quote his conclusions:

“There are two distinct types of response on the part of the body to the infectious agent of rheumatic fever, namely, proliferative and exudative. The perivascular proliferative type of lesion, resembling an infectious granuloma, explains the subacute and chronic character of the clinical symptoms in many patients with this disease. Marked exudation of serum into the periarticular tissues and of serum and cells into the joint cavities are concomitants of the acute arthritis occurring with high fever and general intoxication: these acute exudations disappear following the administration of certain drugs. But their disappearance does not mean necessarily that lesions of the proliferative type have resolved. In fact, we know that these last mentioned lesions, when present in the subcutaneous tissues, often continue for months; and from analogy we may conclude that they have a similar persistent character in other tissues of the body invaded by the causative agent of rheumatic fever.”

That the cardiac involvement is in most cases more than the recognized endocarditis, and should better be called a carditis, has received the strongest clinical confirmation through recent electrocardiographic study by Cohn and Swift.²

Out of 37 cases of rheumatic fever studied, the heart showed evidence, electro-cardio-

graphically, of myocardial involvement in 35, which they report as follows:

“There was alteration in conduction time and in the curve form.

“The duration of the A. V. conduction was increased, though not always; and rarely to the extent of heart block.

“The ventricular wave was variously affected (in the Q. R. S. complex, in the R. T. interval, or the T. wave itself); and there were numerous irregularities in the cardiac rhythm.

“While none of these changes are specific, and it is conceivable that such functional disturbances might be toxic in origin, it is quite as rational to consider them due to the lesions, such as have been demonstrated in the heart tissues.”

As Swift says: “Their transitory nature is no argument against their being due to actual focal lesions; for evidence is constantly increasing that such focal lesions persist about inflamed joints, even after clinical signs have ceased.”

Coming lastly to the clinical bearing of these facts:

We must look upon rheumatic fever not as an acute articular disease, but as a general infection, of which the joint or periarticular lesion—while the most striking—is only one symptom, and that not the most important.

This infection causes both exudative and proliferic lesions.

These lesions occur not only in the joints and periarticular tissues, the subcutaneous tissues, tendons, sheaths and fascia, but chiefly in the heart in all its structures,—pericardium, endocardium and myocardium, and about the arterioles.

Lesions also occur in the brain in a certain number of cases,—about the smaller vessels of the parenchyma, and in small focal areas in the neuropil tissue.

The comparative infrequency of opportunity for postmortem examination in the active stages of the disease may explain the lack of evidence of involvement of other organs or tissues. That such occur is suggested by the profound anaemia so constantly and rapidly ensuing.

The type of lesion, exudative or proliferative, varies with the part affected, and its way of response to the infection.

The severity of the infection can vary greatly, from the most violent reaction of acutely inflamed joints and dangerous hyperpyrexia, to a practically afebrile, slightly aching part, mostly overlooked entirely, or neglected as “growing pains.”

The cardiac symptoms may vary from the most severe, rapidly fatal decompensation, with all the evidence of valvular disease, to a lesion, which may be the only localization of the disease, and so slight that it has no demonstrable signs, and can be detected only by appreciating the significance of languor and weakness.

The severity or mildness of the primary attack, especially about the joints, is no measure of the duration of the disease. An active heart disease may be the only evidence of a continuing rheumatic fever, whose primary or other localization may have been quite unnoted. Poynton, indeed, says that chorea minor is the best single manifestation and index of smoldering activity of infection.

In view of the serious economic problem brought about by cardiac disability in young people who must be wage earners, it behooves us to make more careful examinations and correct diagnosis in all cases of children who complain of slight indefinite pains, who show choreic symptoms however slight, or give evidence of cardiac disturbance by unexplained pallor, or weakness, or undue fatigue at play.

Knowing the involvement of the heart in practically every case, we must secure quiet and full physiologic rest during the attack, however light.

Remembering the persistence of the proliferative lesions, and their preponderance in the clinically milder cases, we should insist on a sufficiently prolonged convalescence to permit resolution, and maintain a careful post-convalescent supervision, to detect the least sign of recrudescence.

More prompt recognition and appreciation at the start, more rigid control during the illness, and continued watching after apparent recovery, are the much-needed essentials of the proper care of rheumatic fever.

Bibliography

¹Pathogenesis of Rheumatic Fever. H. F. Swift, J. Exp. Med., Vol. 39, 1924.

²Cohn and Swift. J. Exp. Med., Vol. 39, 1924.

DISCUSSION

Will Howard Swan, Colorado Springs: I think Dr. Edson has covered the whole ground so fully that there is really very little to say. I think, however, we are greatly indebted to him for bringing to our attention and emphasizing the fact that so many things we have been calling rheumatism—we all have—are not rheumatism, and that the term should be applied to a definite symptom group. I will speak of a few things and emphasize a few points that he made. In the first place, that we should recognize it as general infection, and not as a disease of the joints or a disease of the heart simply—that it is a general infection, and like any other infection, the degree of illness of the patient depends on the virulence of the infection and also on the resistance of the individual. He has called attention to the fact that many cases are very little ill, yet they undoubtedly may explain, or help to explain, a large number of cases of heart disease, the origin of which is obscure. I think if we have that thing in mind in making the diagnosis it will help a great deal. Moreover, because of the frequency of recurrence of rheumatism and chorea, we see at once the importance of recognizing these mild cases and recognizing them early and treating them for a very long time. That brings up the question of the heart lesion following rheumatism. I think we all agree that the most important thing in treatment is rest, and complete rest and prolonged rest, not simply until the fever is gone, or the rapid pulse has subsided, or until the patient makes no complaint, but for a very long time afterwards. And we all recognize, too, the probable frequency of the cardiac complication without apparent evidence in the heart sounds or symptoms referable to the heart. We might say that a rapid pulse or rapid respiration, particularly in children with rheumatism, should lead us at once to consider the possibility of heart complication, and as Dr. Edson has said, it is not necessarily nor probably usually confined to the endocardium, but to the heart muscle and the pericardium as well. And we must remember, too, that where there is an infection, there is probably a persistent focal infection, not simply at the point of entry, but a focus of infection connected with the muscle, or what not, and we know that such infection is liable to flare up under unfavorable conditions, and therefore there is an important duty. We have to keep these patients still and quiet for quite a long time, and watch them, as he says, for a long time afterwards. Swift says that 40 per cent of the cases of rheumatism develop cardiac disease. He also, in a study of the school children of New York City, found 1.4 to 1.9 per cent of the children, as they were studied, to have organic heart lesions.

W. F. Singer, Pueblo: It seems to me that sufficient evidence, or rather emphasis, has not been placed upon the great value of this paper. Dr. Swan has very well brought out the fact that many of these cases of chronic rheumatism, or blood infections, or foci of infection, should be treated in bed and at rest for a very long time, but he does not say how long. Wouldn't it have been better for him to have said for three, six, nine, twelve or even fifteen months? And that is absolutely true. We are taking entirely too lightly these chronic cases that we see every day. It is perfectly remarkable what can be done for

such cases if they are placed absolutely at rest. It is only within the last few years that we have come to recognize that in cases of generalized tuberculosis, or any localized symptom, the most immediate and necessary thing is absolutely rest, and it is not alone true of tuberculosis, but is true of all these things. We all must apologize when we discuss rheumatism or the appendix, or anything else, and yet this convention has shown what valuable things we can get out of these discussions and papers. I personally am very much indebted to Dr. Edson for this very valuable paper. I want also to call attention to something which we are eternally discussing, the question of blood, drainage, and the water intake, which is determined by the specific gravity of the urine, and only that way.

MEDICINE AND SIR FRANCIS BACON

Sir Francis Bacon had a definite conception of preventive and experimental medicine. This is shown in his *New Atlantis*, written about 1623. When his fictitious party lands at the mythical island of Bensalem it is greeted by an "attendant" (a sort of quarantine officer), who says:

"My Lord would have you know, that it is not of pride, or greatness, that he cometh not aboard your ship; but for that in your answer you declare that you have many sick amongst you, he was warned by the Conservator of Health of the city that he should keep a distance."

The party is later shown through Salomon's House, and is told:

"We have also parks and enclosures of all sorts of beasts and birds which we use not only for view or rareness, but likewise for dissections and trials; that thereby we may take light what may be wrought upon the body of man. Wherein we find many strange effects; as continuing life in them, through divers parts, which you account vital, be perished and taken forth; resuscitating of some that seem dead in appearance; and the like. We try also all poisons and other medicines upon them, as well as chirurgery, as physick."

JOHANN DIETZ ON CONCUSSION

A spectacular method of treating concussion of the brain is recorded by Johann Dietz (1665-1738) in his autobiography:

"In the first place I opened a vein in the right arm and let the blood flow freely. After this I shaved his head and bandaged his wound; and then they had to bring me living hens, in which I made a long incision and then tore them clean in two; and these I laid, with blood and all, on his head, and this I did so often as the hens grew cold. I also gave him several doses of spiritum salis ammoniaci anisatum and pulverem antispasmodicum. Finally, I made frequent applications of poultices of cabbage boiled in wine."

SUPPURATION

In the course of an extended investigation into the nature of inflammation, and the healthy and morbid conditions of the blood in relation to it, I arrived several years ago at the conclusion that the essential cause of suppuration in wounds is decomposition brought about by the influence of the atmosphere upon blood or serum retained within them, and, in the case of contused wounds, upon portions of tissue destroyed by the violence of the injury.—Joseph Lister, "Antiseptic Principle," etc.

THE COLORADO PSYCHOPATHIC HOSPITAL

Historical Note

HOWELL T. PERSHING, M.D.,
DENVER, COLORADO

The Colorado Psychopathic Hospital is a reality. With its admirable building, full equipment and complete personnel it is operating successfully in the treatment of patients and also in the study and teaching of mental diseases.

The origin of the hospital was in a paper read before the Colorado State Medical Society, Sept. 10, 1918, by Dr. George A. Moleen, entitled: "Insanity; Its Prevention and Treatment as a State Problem." After a discussion of the subject this paper proposed that Colorado should establish and maintain "a psychopathic hospital for the care of the acutely insane, preferably located at Denver and in connection with the hospital of the State University, for economic and educational reasons; this to be in the nature of a clearing house for cases of acute mental disorders from all parts of the state which offer a possibility of recovery or decided improvement. The laboratory for research and the provision for treatment should be maintained at the highest standard to attain a maximum of results."

Having secured the endorsement of the society and the aid of newspaper friends, especially Mrs. Frances Wayne, Dr. Moleen was able to convince Governor Shoup that it was the duty of the state to establish such a hospital, and he accordingly recommended it to the legislature in his inaugural message. Then, with the aid of Judge Ira C. Rothgerber, Mr. Charles H. Haines and Dr. David A. Strickler, a bill was drawn establishing the hospital as a state institution to be built and operated by the Regents of the University of Colorado.

Mr. Richard F. Ryan also did much valuable work in getting the project for the Psychopathic Hospital and the Colorado General Hospital in their relation to the University in proper legal form before the legislators. The bill in its final form appropriated \$150,000 for the building of the Psychopathic Hospital.

Much work had then to be done, inter-

viewing members of the legislature and addressing various committees in the effort to secure passage of the bill. This was carried on patiently and persistently by Dr. Moleen and Dr. Strickler, generously aided in the legislature itself by Senator Francis Knauss, Dr. W. W. King and the late Barney Napier.

Just before the end of the session, when passage of the bill seemed probable, it was found that the appropriation committees of both houses were opposed to the appropriation; but the bill was passed with no appropriation whatever.

This seemed to end the project, but Dr. Moleen had just begun. He promptly had a bill drawn appropriating \$350,000 instead of the original \$150,000, and by means of petitions, circulated mostly by members of the State Medical Society, this bill was placed, as an initiated measure, on the ballot in the 1920 election.

A campaign was then conducted to popularize the measure with the assistance of Frankwood E. Williams, Director for the National Committee for Mental Hygiene, who addressed a number of organizations in Denver, and the campaign was prosecuted by various interested members of the State Medical Society throughout the state, to the end that the initiated measure was carried by a vote of over 92 per cent.

Following closely upon this, the University of Colorado was offered the assistance of the Rockefeller Foundation for the establishment of a medical school. With the money thus derived and the appropriation made available through the vote of the people, the way was clear for the development of the psychopathic hospital in connection with the Colorado General Hospital, under the Regents of the University.

A Psychopathic Building Committee was organized, consisting of Dr. Chas. N. Meader, Dr. George A. Moleen, Dr. Edward Delehanty and Dr. C. S. Bluemel. The committee was exceedingly fortunate in securing the

services of Mr. Mauriee B. Biscoe as architect.

When the time for opening the hospital approached the election of a director became of paramount importance. It was thought that he must be a psychiatrist of ripe, clinical and administrative experience, who, while conducting the institution in the interest of the patients and of the state, could carry on organized research in mental diseases and act as professor of psychiatry in the medical school of the university.

Dr. Franklin G. Ebaugh, a graduate of the Johns Hopkins Medical School, formerly on the staff of the Henry Phipps Psychiatric

Institute and then Director of the Neuropsychiatric Department of the Philadelphia Hospital, was offered the position and accepted.

An assistant director was needed and it was thought best that his special experience should be in neuropathology. Dr. Hugo Mella, of the Department of Neuropathology, Harvard University, was asked to suggest some suitable person for this position. To the delight of the committee Dr. Mella signified a willingness to take the position himself. He was promptly offered it and accepted, joining the staff in May, 1925.

The hospital was opened for the reception of patients February 16, 1925.

LARYNGEAL CARCINOMA: SUPPLEMENTARY REPORT OF A CASE OPERATED ON EIGHTEEN YEARS AGO*

BY FRANK L. DENNIS, M.D.,
COLORADO SPRINGS, COLORADO

At the meeting of the Colorado State Medical Society in 1908 I had the privilege of reporting a case of intrinsic laryngeal carcinoma, which had been operated on by laryngofissure in October, 1907.¹ At that time I promised to report the final result on some future occasion. I now wish to fulfill that promise.

The history is briefly as follows: A woman of 40 years had suffered for a year with hoarseness and cough, with some soreness of the throat and latterly smothering spells at night. She had come to Colorado with a diagnosis of probable tuberculosis. The examination of the larynx showed a smooth, pink tumor involving the right cord, anterior commissure and part of the anterior end of the left cord. Iodides up to 105 grains daily produced no change in the growth, the tuberculin test was negative and biopsy revealed squamous cell carcinoma. After opening the larynx both cords were dissected out. Another pathologic examination of the specimen confirmed the diagnosis. After a stormy course for several months, which included perichondritis, followed by

stenosis, dilatation of the larynx with a large O'Dwyer tube was begun. This was continued for about a year, being finally stopped in April, 1909.

The airway since has been adequate, although some stenosis remained. The patient suffered an attack of pneumonia in 1909 and again in 1916. In 1917 she dropped out of sight and nothing was heard of her until February of this year when she came in for examination. At that time the interior of the larynx was perfectly smooth and while considerably distorted by scar formation, there was sufficient lumen for comfortable breathing. She has a very good voice, although it is not perfectly clear, due to the fact that she must use her false bands for phonation. Her general health is excellent and she is well able to do a good deal of hard housework.

At the time of the original report of this case, sufficient time had not elapsed to classify it as even a relative cure. Since, now, eighteen years have gone by since the operation without evidence of recurrence, one may with confidence regard the cure as permanent.

Reference

¹Colorado Medicine, June 1909.

*Read by title at the annual meeting of the Colorado State Medical Society, September 29-October 1, 1925.

FRACTURES OF THE PELVIS*

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The severe and obvious fractures of the pelvis, those alone reported prior to x-ray diagnosis, occurred with few exceptions in the employees of manufacturing, mining and railroad companies; resulted in great shock and were frequently complicated by concurrent injuries. The mortality was high. Quain's study of the literature showed the mortality, in cases reported previous to 1890, to have been 86.7 per cent. The present mortality is less than half that.

The prevalent use of the Roentgen-ray in diagnosis has shown that the less severe fractures of the pelvis are not of infrequent occurrence. Doubtless many of these had formerly passed unrecognized. The marked change in statistics adds plausibility to this, as improvement in treatment has been too slight to justify its claiming credit for such apparent betterment in results.

While fracture of a pelvis was confined largely to industrial employees, the patients were in the wards of a few hospitals and treated by a few surgeons. The automobile entered, and with it a host of changes due directly or indirectly to its advent. One of these our subject brings "into the field". The widespread and rapidly growing use of the automobile (13 million in common use in the U. S. and Canada in 1923) has spread the potential causative factors of fracture of the pelvis, namely, great weight, in rapid motion, under poor control, country wide and placed them on every highway. It follows that there is no one doing surgery to-day, if in never so remote a corner, who may not, at any hour be called upon to diagnose and treat this injury.

The bony pelvis, is, as pointed out in Piersol's Anatomy, roughly heart shaped, with a wide arch, of which the central third is somewhat flattened, posteriorly, the anterior half having the greater curve and being somewhat flattened at the iliopectineal regions. This shape at least partially accounts

for the points of greatest weakness being at, or near, the sacroiliac synchondroses, midway between the symphysis and acetabula, and at the symphysis pubis. Morris, as quoted in Ryan's article on this subject, speaks of the mechanics of the pelvis in this way: "When much strength is essential in an arch it is often prolonged in a ring to form a counter arch; i. e., the ends of the arch are tied together so as to prevent them from starting outward. Therefore, a portion of any weight carried by an arch is distributed to the center of the counter arch. Now, in the pelvis, the body and horizontal rami of the pubis form the counter arch of the sacro-femoral arch, and the union of the rami of the pubes and ischii the tie of the ischio-sacral. The ties of both arches are united in front at the symphysis, which, like the sacrum, is common to both arches. Therefore, it can be easily understood why any severe direct violence applied to the pelvis will result in fracture of the horizontal or descending rami of the pubis, the rami of the ischium, and ilia external to the sacroiliac joint."

This fracture derives its significance, in order of frequency as well as gravity. First: Through endangering the abdominal and pelvic viscera within the pelvic ring. Second: Through endangering the function of weight bearing, as in sitting, and weight transmitting, as in standing, through injury to the ischio-sacral and sacro-femoral arches respectively. Third: Through endangering the ability to walk. Fourth: Through endangering the pelvic contour, essential in the female, to safe child bearing.

Injury to the intra-pelvic viscera not infrequently immediately pushes the primary bony injury aside and assumes for itself the place of first importance, in both diagnosis and treatment. Of these injuries rupture of the bladder, intra- or extra-peritoneal, and rupture of the urethra are the most frequent and serious. They may be present despite there being little displacement of fragments at the time of examination. As one writer

*Read at the annual meeting of the Colorado State Medical Society, September 29-October 1, 1925.

has suggested, it is to be assumed in such a case that the displacement has been greater at the time of the injury and that readjustment is due to the elastic qualities of the pelvic ring.

When bladder injury is suspected and the patient is unable to void, immediate catheterization should be done. Should no urine be recovered, it may be due either to anuria from shock, or to intra-peritoneal rupture, with escape of urine into this peritoneal cavity. The presence of blood indicates injury, but gives little help in determining the site of injury. After catheterization a given amount of sterile water or boric acid solution may be injected and on withdrawal measured to determine whether any fluid is finding its way through the bladder wall.

Fuller states that, "extraperitoneal rupture generally occurs in the region of the trigonum, less frequently above, under the space of Retzius, and occasionally at the side of the vesical neck." In most instances the injury consists of one tear, less frequently of two, and occasionally of even more.

In extra peritoneal rupture with extravasation of urine the direction taken by the burrowing urine is somewhat dependent upon the site of rupture, but in the majority of cases is toward the most dependent part of the extraperitoneal space, or, as pointed out by Fuller, "the post-prostatic area".

There are no early strikingly characteristic symptoms of extraperitoneal rupture, and unfortunately the injury often remains undetected until the burrowing and dissemination of extravascular urine is extensive, later inflammatory changes have occurred and the foundation for long continued morbidity has been laid. If extravasation is large, infection is practically certain. Besides the ordinary dangers of infection, there is here the added danger of it reaching the fracture, converting it from a simple to a compound.

Intraperitoneal rupture results in intense pain in the abdomen, collapse, and great irritation of the urinary reflex, with inability to void. The prognosis depends largely upon the promptness with which the condition is

recognized, and laparotomy and repair of the tear accomplished.

While the immediate mortality of intra-peritoneal rupture is the greater, the morbidity resulting from extra- is greater than that from intra-peritoneal rupture. Both Fuller and Quain believe "that most patients with extraperitoneal rupture of the bladder are left seriously invalided for life." Lessening of this morbidity can certainly be accomplished only by early, more thorough, and more intelligently directed drainage. Suprapubic drainage of the bladder should be immediately established. This, by removing intra-vesical pressure, will save further urinary extravasation. The self retaining catheter may also be used, but full dependence for drainage should not be placed upon it. If evidence of extravasation into the cellular tissue is found early, dependant drainage here also should be established. Bad results in these cases seem to have been due quite largely to too great conservatism and to delay. In rupture of the urethra, operating through the perineum would seem to be indicated as offering better drainage of the tissue about the ruptured urethra, as well as permitting of an attempt at repair. When retrograde catheterization is found necessary, the supra-pubic cystostomy serves a double purpose in affording drainage as well as permitting of catheterization.

I have found no mention of deformity of the pelvis, due to fracture, sufficient to interfere with childbearing. At those parts of the pelvic ring most liable to fracture, deformity would have to be very great to interfere severely with the birth measurements. The possible interference with this function should not go unmentioned, however, notwithstanding the popularity of Caesarian section no longer permits of the pubic arch being spoken of as "the triumphal arch under which all humanity has passed". I have found but one reported case where fracture of the pelvis caused recourse to Caesarian section, that a case reported by Dr. Carey Culbertson. And here the operation was done because of the recency of the fracture—six weeks prior to term—rather than to deformity.

In every case of severe injury in the pelvic region the possibility of fracture should be in mind. Pain, either near the site of fracture or indefinitely located "through the pelvis" is usually present. Pain is increased by pressure from the sides of the pelvis or on movement of the legs. Crepitus may be present. Mengel, however, warns against trying for crepitus, owing to the danger of causing or increasing injury to the urethra or bladder. This same danger argues against vaginal and rectal examination in suspected pelvic fracture. The clinical findings should be substantiated by the x-ray findings.

No arbitrary rules for treatment of the bony injury can be offered, as the indications vary very greatly. The Bradford Frame proves very helpful in the general care and adds much to the comfort of the patient. Open treatment is contraindicated owing to the likelihood and danger of infection.

Case Reports

Miss E., aged 16, a healthy school girl, was injured in an automobile accident.

When examined four hours later her general condition was good. While lying quietly on her back there was but little pain. Any movement of the body, however, caused pain "through the pelvis." Inward pressure on the crests of the ilia, or on the trochanters, or any movement of the legs increased the pain. Urine, containing no blood, was voided.

X-ray pictures were taken showing a fracture of the right ileum extending upward thru lower third of ileo-sacral joint and obliquely outward to the crest. There is some spreading of the fragments in the lower end of the fracture line, otherwise position is normal. Fracture of the horizontal ramus of the pubic bone three inches from the symphysis and fracture of the horizontal ramus of the ischium about the same lateral plane. The external fragment is displaced slightly upward.

The patient was in bed, on the Bradford Frame, two months. Slight extension was used on the right leg for about three weeks, as it was found to add to the patient's comfort. Sand bags were used to support and prevent movement of the pelvis. X-ray pictures were taken during the time of treatment.

Four months after the injury the patient walked without discomfort and without a limp. Both measurements and function show a perfect recovery.

Miss G., aged 20, a strong and healthy young lady was riding a spirited horse, using an English saddle, when the horse reared and fell backward. The patient had slipped out of the saddle and was in a sitting position when the horse fell on her.

I examined her within one-half hour of the accident. She complained of severe pain in "lowest part of back" and the lower abdomen. Shock was

shown by pallor, cold extremities, large pupils and a weak and rapid pulse. No abrasions or contusions were found at first examination; no signs of injury of the abdomen, legs or feet. Backward pressure on the public arch, inward pressure on the crests, as well as forward pressure on the sacrum caused severe pain.

X-ray pictures showed a transverse fracture of the ischium and pubes on the left; of the ischium and probably the pubes on the right, and of the sacrum somewhat vertically thru the 1st, 2nd, 3rd and 4th segments on the right involving the foramina. Relation of fragments was satisfactory except that the inner fragment of the right ischium was below the outer fragment; ends apparently not in good contact.

There was no indication of injury to the bladder or other pelvic viscera. She was placed on a Bradford Frame and sand bags were used to prevent movement of the pelvis and legs. For the first few days following the accident there was a troublesome sensation of tingling in the right leg.

Four months following the accident the patient was walking without any difficulty. Her recovery seems perfect.

Mr. C., salesman, aged 63. General health good. Supra-public prostatectomy a year prior to present injury. Was injured in an automobile accident at 8 p. m. Was pinned under the car where he spent the night under great exposure. He was admitted to the hospital the following morning in severe shock. The lower part of the trunk showed many contusions and abrasions. Any movement of the legs and any pressure on the ilia caused increased pain. Abnormal movement in the pelvic ring was easily detected. Considerable bleeding had occurred from the external meatus. He was unable to void. An attempt at catheterization failed, the catheter entering as far as the deep urethra, where it seemed to leave the urethra. X-ray pictures showed fractures of the left pubic ramus, $\frac{3}{4}$ inch external to the symphysis pubis, fracture of the left pelvic brim opposite and apparently extending into the acetabulum. The portion of the pubic ramus between these two fractures constituted a loose fragment, the upper end of which projected into the pelvic cavity about $\frac{3}{8}$ inch, the lower end of which was displaced downward and outward about $\frac{3}{8}$ inch. A catheter in the penile urethra at four inches from the external urethra was shown to curl upon itself, the remaining part describing a circle presumably in the loose tissue of the perineum. Little was done for the first twenty-four hours, except to combat shock. A supra-public cystostomy was done under local anaesthesia. The bladder was found moderately distended with urine, showing no blood stain. Drainage of the bladder was maintained by means of a large tube. Further surgery seemed unwise because of the serious condition of the patient.

A few days later a perineal opening was made in the hope of repairing the urethra. Wide destruction of perineal tissues was found and an open space in the cellular tissues contained thin purulent fluid due primarily to the wide dissemination of urine from the ruptured urethra. Retrograde catheterization was done and free drainage established. He left the hospital after two and a half months, a small amount of urine still escaping from the supra-public opening. There was still some drainage from the perineum. Two months later an abscess formed in the scrotum. Eight months following this injury he was walking and was apparently quite recovered except

that it was found necessary to use urethral sounds at short intervals to keep the urethra patulous.

A year following the injury a urethrotomy became necessary because of the contraction of scar tissue around the deep urethra. Since that time, now more than a year, there has been difficulty in keeping a patulous urethra. A catheter has been kept in the urethra the greater part of the time. Aside from this serious handicap and the possibilities due to it, the patient is well.

The last case—seen several times in council with Dr. Haney—I am permitted to report through his kindness.

Mr. D., aged 28, a chauffeur, was injured in an automobile accident and brought to the hospital an hour later, where he was attended by Dr. Haney.

He was nauseated; his pulse was very weak. He was unable to use either leg. His chief complaints were of severe pain in the hips and pelvis, extending down the legs, and of severe pain in region of urinary bladder. He was unable to void. A catheterized specimen was heavy with blood.

"X-ray examination of pelvis showed a transverse fracture through both the ascending and descending ramus of the pubis on both sides. The median portion was displaced downward and backward and there was about a half inch over-riding on the right side. A concurrent injury, fracture of one rib in left chest wall, was found."

The patient's general condition was alarming for the first few days following the accident. A catheter was kept in the urethra continuously. A supra-pubic cystostomy was done on the fifth day. Extravasated urine was found in the cellular tissues of the space of Retzius and widespread infection was evident.

The general condition of the patient improved for a time, but symptoms of further infection appeared, and despite repeated efforts to establish sufficient drainage through the perineum and supra-pubically, the patient died about two months following the injury.

DISCUSSION

William Senger, Pueblo: Dr. McClanahan very kindly sent me a copy of his paper. I am going to throw a few slides on the screen to emphasize some of the points that he has stressed. The first case is a boy of sixteen years of age. You can see that there is a fracture of the ilium on both sides; there is a comminuted fracture of the left ischium and pubis. The symphysis is dropped down too far on the left side. This boy, when he was brought in to the hospital, showed blood in his urine. Naturally, with a pelvis like that you would think it came from a ruptured bladder. On examination we found he had additional fractures of the sixth, seventh, eighth, ninth and tenth left ribs, and a large contusion over the left kidney. The diagnosis of rupture of the kidney proved correct at operation. The next case has a fracture of the left ilium; here is a fracture of the right ischium and pubis with much distortion. This boy now has returned to his work in the mine. He has a record of producing as much as any out of about 150 diggers. This is simply to indicate that the young usually come back in almost any fracture. The next case is one which had a fracture of the left ischium and pubis and body of the third lumbar vertebra. So far as the pelvis is concerned, he had a good result; so far as the fracture of the third lumbar is concerned, he has partial paralysis of the lower limbs and is now getting full compensation. This one is a fracture

of the right ilium. The sacro-iliac ligaments are torn loose. He is practically incapacitated, not on account of the fracture, but on account of the sacro-iliac joints. This is always a most serious complication—often impossible to remedy. In the next case the head of the femur is driven through the acetabulum. This man also had fractures of both ischium and pubis, a laceration of the perineum into the rectum. This case also had an uncompensated heart lesion. He was finally able to get around on crutches. He celebrated a little too much and died of acute dilatation of the heart. Another case complained altogether of his pelvis. He had fractures of the left ischium and pubis, fractures of the eighth to the twelfth dorsal vertebra and of the sacrum. In addition he had a ruptured small intestine, a hole about four inches long. The next pelvis is very badly distorted to one side. This woman, when she was about seventeen years old, in 1917, was thrown from an automobile and the pelvis crushed. She came to me in 1922 and asked if she could become pregnant. I told her if she ever did become pregnant she probably would have to undergo a Caesarean section. She married shortly afterwards, came to a full term pregnancy within a year; and had her Caesarean section. Judging from the looks of that pelvis, it was perfectly justifiable to perform this operation.

L. H. McKinnie, Colorado Springs: It is unfortunate for the audience, and also for me, that I have been put on to discuss this paper because I have had very few of such cases. The principal thing, I think, that should be accentuated is urethral injuries and the difficulty we can have in correcting them.

Two years ago I had one case which illustrates this perfectly. A young man was thrown from a horse, the horse fell on him, the saddle-horn striking him over the pelvis causing a fracture. This young man lay out on the prairie practically all night, and was found the following morning in a very bad condition. He came in with shock and great pain from his fractured pelvis and his inability to void. On the ranch I attempted catheterization but failed in my attempt to enter the bladder, obtaining nothing but a small amount of blood. As soon as he could be gotten to the hospital the bladder was drained by suprapubic cystostomy. Following this I did a perineotomy, passed a catheter through the torn urethra and reconstructed the tissues as best I could. During the night following this operation his nurse called me up and said she had succeeded in getting the catheter out of position. This was cheerful news in the middle of the night, knowing nothing to do but anesthetize the patient and replace the catheter. He then did well, being placed on a Balkan frame. The suprapubic opening healed nicely, but in endeavoring to remove the retention catheter the bulb pulled off, and it was necessary to re-open the bladder to get out this portion of the catheter. He then healed up and has been sounded frequently ever since. The great difficulty we encountered in the urethra was caused by a mis-placed fragment of pelvic bone which impinged upon the urethra.

Another case had five distinct fractures of the pelvis, with no injury to the viscera, being, however, an exceedingly bad case on account of shock.

The third case had an extra-peritoneal rupture of the bladder, which recovered promptly by nothing other than suprapubic drainage.

J. R. Espey, Trinidad: In railroad and mining practice we see a number of these. I have had

one bad result that is due to union with deformity preventing a full movement of the femur. We see a fracture of the pelvis without visceral injury that gives not a great deal of concern. If they are broken where they do not interfere with the movement of the joint, they generally heal entirely, and I know men who are doing a man's work, a very able man's work, without any drawbacks. I had recently a horseback fracture where a one legged man was riding a horse, and the horse fell right backward on him and drove the pubis in in such a way as to cut off the urethra entirely. I used the measurement with water to find the condition of the bladder, which we did very readily. In measuring the bladder we tried to put eight ounces of water into the bladder; it apparently went in very nicely and we got nothing out except a little bit of blood. Then a super-pubic section showed what we had. The drainage has been for some weeks mainly through the super-pubic section, although there was a urethral catheter in, and I hoped that the urethra would grow together and would tie up the severed ends of the urethra better than we can repair it if we have to. I saw some years ago the front of the fundus of the bladder cut off so thoroughly by a fracture of the pubic bone digging into it that I was afraid he would have no bladder, and after the repair of the bladder, when it was not full, not blown up at all, it was not larger than a large walnut. Of course, the trigone and the essentials were there, and only enough of the fundus left to patch it up in front. However, it held, and the frequency of urination gradually diminished, and the man got back to mining. I have not seen him for several years, but the last I knew he was not as able as he was before, but was able to work as a coal miner. The later developments and growths after these injuries are quite hopeful. This man was finally able to hold eight or ten ounces of urine in a bladder that had developed from being sewn up into a little ball that looked not much larger than a large walnut.

C. E. Tennant, Denver: I assume there is not much difference in the manner of treatment existing among the members of the profession, because there has been very little said about treatment, certainly not as much as there has been in connection with hip joint fractures. The last picture which Dr. Draper threw on the screen reminds me of a recent incident in my own experience in which there was a serious fracture of the pelvis, the result of an automobile accident, in which there was no visceral injury, but marked deformity. The patient was a young woman. For the future of the patient I did not feel like permitting her to go with the deformity and I undertook a method which proved to be satisfactory, and, since I have not heard it spoken of, I am presenting at this time the procedure which I undertook. Having seen an osteopath manipulate a spine, it occurred to me the same principle might be applied in this case. The patient has a fracture of the ilium, a marked displacement and separation of the symphysis. I had the lower extremities strapped to a rigid table and, while the patient was under a general anesthetic, by a system of leverage and rotation of the upper part of the body the deformity was very well corrected. I placed her in a plaster cast and on a Bradford frame for the usual period of time. To my surprise we had gained about three-fourths of an inch replacement, which I did not think possible, and the patient has recovered without a limp.

G. H. Curfman, Salida: Dr. McClanahan's

paper on fractures of the pelvis is especially interesting to the industrial surgeon. I wish to add just two case reports briefly to bring out one or two points not touched upon. One was a crushing injury in which the patient was caught between two heavy boulders. He was brought under our care within an hour after the accident, bleeding profusely from the urethra. There was a contusion on either side of the pelvis. A sterile metal catheter went only to the membranous urethra. An x-ray showed an oblique fracture of the ischium on the left side. He was taken to the operating room where a perineal incision was made, revealing the urethra completely rent anterior to the prostate. We were able to pass the catheter into the bladder and unite the fragments of the urethra and institute perineal drainage without further operative procedure. The symptom in this case which has been interesting has been the apparent complete loss of sexual power due to the injury of the bulb. There is some obstruction of the urine at this time, but it does not interfere with his work as a laborer. The other injury happened several years ago at the time of the Pueblo flood, and illustrates an isolated fracture of the pelvis, due to muscular over action. Two railroad employees of heavy build started to run a race on the Pueblo platform, and one of the men suddenly held out his hand to stop the other. The latter was immediately seized with severe pain in the right groin and was taken to the car, but did not consult a physician until a number of days afterwards. There was a hematoma in the right groin. Six months later he came under our care with a diagnosis of rheumatism. The x-ray showed a projecting bony mass below Poupart's ligament which apparently was a fragment of the ascending ramus of the right os pubis. Excision of the fragment was followed by recovery.

Fosdick Jones, Denver: In the case reported by Dr. Senger, there is just one point which I would like to emphasize relative to the management of fractures of the pelvis involving the sacro-iliac joint. In many of these cases in which the sacro-iliac synchondrosis has been fractured, radical operative procedure will be found necessary. The Smith-Petersen incision gives, I believe, the best exposure in operating upon these joints, and by arthrodising the sacro-iliac joint which has been fractured and following the operative management by immobilization in a plaster paris spica, the results are very satisfactory. In my opinion, in the vast number of cases of fractures of the sacro-iliac joint there is no supportive apparatus which will be found to be adequate.

Dr. McClanahan (closing): The important points have been brought out, and I certainly appreciate the discussion. I think that the ordinary complications, certainly the extra-peritoneal rupture, is the more difficult to detect, and it is most important that it be discovered early and that early drainage be established. Death resulted in one of these cases from general infection of the pelvis in spite of the fact that every effort was made to establish drainage. This is a most important point, where we have extra peritoneal rupture of the bladder to establish early an independent drainage.

WITCHES

For my part, I have ever believed, and do now know, that there are Witches: they that doubt of these, do not deny them, but Spirits; and are obliquely and upon consequence a sort not of Infidels, but Atheists.—Thomas Browne (1605-1682).

THE SIGNIFICANCE OF CERTAIN PATHOLOGICAL PUPILLARY CHANGES*

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In my paper this morning I wish to bring before you the subject of pupillary pathology and its relationship to diagnosis of disease in general. I shall briefly state the variations of the normal pupil, the muscles and nerves controlling it, and the changes in it under various physiological and pathological conditions, emphasizing especially those conditions of the central nervous system and body by which it is most frequently and characteristically affected.

The pupil, as you all know, is an aperture in the iris which permits the passage of light rays through it, and by its contraction and dilation so controls the quantity of this light that we may get the best visual differentiation.

Normally it varies in size depending on conditions of life and of light. In infancy the pupils are contracted; in youth and adolescence somewhat dilated; in the middle years of life they occupy a position midway between these two states; while in old age they are usually somewhat contracted. Ordinarily in bright light they will be found contracted, while in dim light or darkness they will be dilated. As a general rule dark brown or deeply pigmented irides are associated with somewhat larger pupils than light grey or blue.

In considering the pupil anatomically we must of necessity consider the musculature of the iris which surrounds and makes it. The iris has in it two muscles, one the pupillo-constrictor or sphincter muscle, the other the pupillo-dilator or radial muscle. The muscle fibers of the former are arranged circularly about the margin of the pupil, while the radiating fibers of the latter have their origin in the root of the iris and their insertion into the fibers of the sphincter. As their names imply, the action of each of these muscles is the direct opposite of the other.

The nerves supplying the iris consist of

three different sets, namely: sensory, motor, and sympathetic. The sensory nerves are branches of the ophthalmic branch of the fifth, which reach the iris thru the ciliary ganglion and long ciliary nerves. Centrally thru the Gasserian ganglion they make connection with the third or oculomotor nerve. The motor nerves of the iris arise in the nucleus of the third nerve which lies in the floor of the fourth ventricle, pass on downward thru it to the ciliary ganglion, which in turn gives off the short ciliary nerves that end in the sphincter muscle. The sympathetic nerves arise from the first, second and third dorsal nerves and passing upward thru the inferior and superior cervical ganglia, they reach the ophthalmic branch of the fifth nerve which they follow down to end in the ciliary ganglion. From here they make connection with the pupillo-dilator muscle thru the long ciliary nerves.

From the fact that either the dilating or contracting musculature of the pupil may be affected, one can readily see that dilation and contraction may be either of a spastic or paralytic type, depending on which nerve pathway is affected and in what manner. Normally contraction of the pupil is brought about by stimulation of the pupillary light reflex are either thru its afferent arm consisting of the retina and optic nerve tract, or by downward impulses along its efferent arm originating from cerebral stimuli. Dilation of the pupil is brought about by stimulation of the sympathetic nerves which in turn act on the dilator muscle, or by suspension of the pupillo-contracting mechanism in the brain.

In health both pupils are equal in size and readily responsive to light and accommodation. Any variation from this state is nearly always pathological, although it is not always possible to find the cause.

In order to appreciate fully the significance of various pupillary changes we must always keep in mind the various physiological and pathological states of the body

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which may influence its behaviour. The normal pupil is influenced by the following conditions: (1) light and shade, (2) sensory stimuli, (3) certain drugs, either locally or internally, (4) emotional states, (5) sleep, coma, death, (6) local disease of the eye, (7) disease of central nervous system, (8) various other conditions in the body.

As mentioned above, light and shade normally cause a contraction or dilatation of the pupil accordingly as they vary in intensity. Sensory stimuli, such as pressure on inflamed joints or similar stimuli elsewhere in the body, are apt to cause dilatation.

Drugs, either instilled locally in the eye or given internally, may cause either a contraction or a dilatation according to the individual selective action of the drug. Some, as for example, chloral, may even at first cause a constriction and later on, as the amount in the system increases, a dilatation. The more common drugs causing a contraction of the pupil are eserine-salicylate and pilocarpine, while those which, when given internally, cause the same state of the pupil are: opium or its derivatives, carbolic acid, creosote, pilocarpine, muscarine, and alcohol in lethal doses. Dilatation is produced locally by cocain, homatropine, atropine, euphthalmine, hyoseyamine; and, when given internally by such drugs as aconite, chloral, cocain, conium, digitalis, ergot, amyl nitrite, atropine, scopolamine and quinine. In considering any pupillary phenomena it is needless to add we must always rule out any drug action either locally or internally.

In violent emotions, such as anger, the pupils are usually somewhat dilated due to stimulation of the sympathetics. In sleep they are contracted, while in coma and death they are dilated. You are all no doubt familiar with the action of the pupil in anesthesia and its significance.

Local conditions of the eye, such as foreign bodies on the cornea and inflammatory states of anterior segment of the eyeball, cause constriction in varying degrees. Glaucoma, optic atrophy or total blindness from any cause which does not destroy the eyeball usually cause a dilatation.

It is, however, in diseases of the central

nervous system that our pupillary findings may give us our best clues as to the process going on. Anisocoria, or unequal pupils, is a common finding in a great many cerebro-spinal diseases, although a great many observers have reported it in a certain percentage of apparently healthy people. It is our rule where we find slight inequalities existing but where the response to light both direct and consensual, and the response to accommodation are normal to attach no especial significance to the finding. If, however, there is inequality with partial or total loss of response to light, then we feel that the finding is significant and that an attempt should be made to determine its cause. Probably the greater majority of these cases occur in connection with some form of central nervous system lues.

A dilated and partially fixed pupil either alone or in conjunction with paralysis of some of the eye muscles is a very common finding in central nervous system lues, although it is not found in every case of such nature. But whether found alone or in connection with other paralyses, it is always our custom to advise our patients of its significance and of the course they should pursue to determine its cause.

As an example of this type, may I cite a case from our records, No. 2070. This patient was a male, aged 39 years, who came to the Pueblo Clinic in May, 1921, complaining of pains in both eyes and of twitching of the upper eyelid of the right eye. On examination for glasses he showed a moderate grade of compound hyperopic astigmatism. Ophthalmoscopic examination showed normal fundi. The pupil of the right eye was 4 mm. in diameter and fixed in response to light. The pupil of the left eye was 3 mm. in diameter and sluggish in response to light. Both pupils responded to accommodation and to consensual light reaction. On questioning, the patient gave a history of a small sore on the penis 18 years previously. A physical examination and Wassermann test were advised and made. The physical examination was negative except for the following neurological findings: The biceps, triceps, patellar and Achilles re-

flexes were all somewhat exaggerated. The Wasserman reaction on the blood serum was four plus. Because of these findings and a history of vague aches and pains in some of the lower joints and abdomen, a diagnosis of lues of central nervous system was made in this case.

The so-called Argyll Robertson or contracted pupils which do not react to light but react to accommodation are very characteristic of tabes. They sometimes make their appearance several years in advance of other symptoms but are more often manifest in the advanced, rather than the incipient, stages. Different statistics vary, but the average is about 75 per cent of all cases of tabes who show Argyll Robertson pupils. From 27 to 60 per cent of all cases show an inequality of the pupils according to these same figures. While the majority of cases of tabes fall within the above class, there are some cases which have normal or even dilated pupils. The latter is more apt to be so if there is an optic atrophy along with the tabes. As an example of tabetic pupils, may I refer to case No. 6299. This patient, a male, aged 40 years, came to the Pueblo Clinic in February, 1922, complaining of nervousness and vague muscle pains in abdomen and lower extremities. During the course of the ocular examination he was found to have small contracted pupils, $2\frac{1}{2}$ mm. in diameter, which were equal but slightly oval and irregular in shape. There was a very questionable, if any, response to light. There was a normal response to accommodation, but a very sluggish response to the consensual light test. The fundi were normal. He gave a history of gonorrheal infection 15 years previously but denied ever having had lues. Physical examination showed increased knee jerks and tendo-Achilles reflexes on both sides. Several small areas of skin anesthesia were found over different parts of the body. Blood Wassermann was four plus. In addition he gave a history of some mental disturbance. From his history, his various neurological findings and his Wassermann test a diagnosis of syphilis of central nervous system,

probably of the early tabetic type, was made.

In paresis the appearance and action of the pupils is one of the earliest characteristic signs. Dercum, in speaking on this subject, says: "One of the earliest phenomena observed in paresis is an inequality of the pupils." He further states that in the early stages a difference in the promptness of response to light between the right and left pupil is the rule. Likewise an impairment of the light reaction may be the first symptoms of a pupillary disorder in paresis. Inequality of the pupils has been observed in as low as 27 per cent and in as high as 100 per cent of paretic cases, according to different men. This wide variation is probably due to difference in interpretation of findings and also to closeness of observation. However, inequality and deformity of the pupils are almost universally mentioned as one of the earliest signs of this disease.

While in paresis the response to convergence and accommodation may be retained for a considerable period after the response to light is lost, being in this respect similar to tabes, yet in a great many cases of paresis this response of pupil to convergence and accommodation is also lost; especially is this so in the later stages of the disease. In this respect they differ from tabes, where the response to accommodation is nearly always retained. Also in tabes both pupils are more apt to be contracted, while in paresis only one or possibly neither is contracted.

In brain tumor there are no absolutely characteristic pupillary findings. If the tumor is above the tentorium or located in frontal areas there is apt to be no pupillary change at all. If located below the tentorium and particularly about the base, the pupil on the side of the lesion is very apt to be dilated and fixed, due to paralysis of the pupillary fibers of the oculomotor nerve from increased intra-cranial pressure. Here, however, the pupillary changes can only be interpreted in the light of other findings. In severe head injuries with intra-cranial hemorrhage the pupillary changes are sometimes very striking and very significant. Holman and Scott of Cleveland, Ohio, recently re-

ported a series of six cases of severe skull injuries with intra-cranial hemorrhages, in all of which the pupil on the same side as the lesion at some time or other became dilated and fixed. While in several of their cases this was of a transitory nature, yet their conclusion from a study of these six cases was that a unilateral dilatation and fixation of the pupil were a valuable aid in determining the location of intra-cranial hemorrhage following head injuries.

Pupillary changes are also present in connection with various general diseases. Following diphtheria, especially where anti-toxin is not given, it is not at all uncommon to see the pupils dilated and slightly impaired in their response to light. Partial or complete loss of accommodation is usually associated with this dilatation. In tuberculosis of the lung, especially of the apex, a dilatation and partial fixation of the pupil on the same side as the lesion is sometimes found. Here the dilatation and partial fixation is probably due to pressure of the enlarged bronchial glands on the sympathetics, with their consequent stimulation and action on the pupil, which causes it to dilate.

With aortic disease we will sometimes get a dilated and partially fixed pupil, usually the left. By some men this is thought to be due to stimulation of the sympathetics by enlarged lymph glands, while by others it is thought that the aortitis and dilated pupils were both symptoms of the one disease, syphilis. Just recently we had a case come under our observation which shows it may apparently be due to aortic disease in itself. This case, No. 14661, was a woman aged 27 years. Her only complaint on coming to The Pueblo Clinic was a dilated pupil on the left side with blurring of vision. Examination showed a small amount of hyperopia right and left. The fundi were normal. The pupil of the right eye was $3\frac{1}{2}$ mm. in diameter and readily responsive to light and accommodation. The pupil of the left eye was 5 mm. in diameter, a trifle sluggish in response to light, but normal in response to accommodation. Consensual light reaction normal for both eyes. A physical examination was advised and made. All physical

findings were negative except for a chronic endocarditis of the aortic valve and a blood pressure of 210 systolic and 120 diastolic. Blood Wassermann was negative and tubercumet negative. Here although, because of her physical findings and the history of her husband, with which we were familiar, we were rather suspicious of syphilis, we were forced to the conclusion that her pupillary changes were due to her aortitis, the cause of which we were unable to find.

In conclusion, let me say that while there are no pathological pupillary changes which are absolutely pathognomonic of any one disease, yet there are certain changes which should at least be highly suggestive to us. Especially is this so with the unilaterally dilated and partially or absolutely fixed pupil which should always bring to our mind cerebral disease, usually in some form of central nervous system lues or some of the conditions of the general system which have just been mentioned. In all cases, however, we should interpret pupillary changes only in the light of other physical findings.

DISCUSSION

E. R. Neeper, Colorado Springs: Dr. Hopkins covered the ground quite thoroughly and very much in detail, so I shall not detain you long. There are two or three points I would like to make. Any synechia of the iris to the lens may lessen the ability of the pupil to react as the result of light or other stimulation. We may also have no reaction when we have an hemianopic eye under examination, if the light is thrown in against the blind side of such an eye. A point I think worthy of consideration is, when you have contracted a pupil by direct or consensual light stimulation, whether or not such contraction will be maintained normally. We may have a defective transmission which will permit us to get a moderate or definite contraction of the pupil, and yet it may not be well maintained. A thing we also must give consideration, I think, is the size of the pupil, as regards refraction. The myopic pupil is larger usually than that of the hyperopic, and when a very high refractive error of any type exists the reaction to light probably will be lowered. The thing I would bring before you of the greatest importance is the manner of making the examinations. I think that most authors, in fact I think all of them, have emphasized the importance of having your patient face a rather moderate light, and to have the light fall equally upon the two pupils. Because of the difficulty of accurately observing the eye under a subdued light and because of the shadow that your body may cast on the pupils, it is oftentimes difficult to determine just what reaction, if any, you are getting. This is brought out by Dr. Hopkins' paper wherein he states that some authors in parietic cases find 27 per cent and others 100 per

cent of inequality of the pupils. This is too great a disparity in their findings, and such vast difference must be of faulty technique rather than of variation in their respective cases. I have thought that I got definitely better results by having the room quite well darkened, or entirely dark, using instead of the daylight, two points of artificial illumination. And I have also felt that I had better results with my patient in the recumbent position rather than sitting up. If the patient is sitting in a chair it is with difficulty that we avoid eyelashes and certain reflections. It is possible to illuminate or trans-illuminate the anterior segment of the eye with a flash lamp or some other office trans-illuminating apparatus held laterally and so well back that we are not disturbing the eye from the standpoint of direct light, and yet are illuminating the anterior segment so perfectly that we can watch the pupillary action very accurately. I place my patient in the recumbent position looking at a point in the room, preferably a point on the ceiling. If the room is too dark we can turn a flashlight to a point a considerable distance away for fixation. One light is held at the side of the eye being observed, while we throw our direct light on the fellow eye for consensual observation. The technique is easily acquired, and if practiced the condition of the pupil will be more easily and more definitely determined and as a consequence reliable statistics obtained.

E. M. Marbourg, Colorado Springs: I want to compliment Dr. Hopkins on the thoroughness of his paper. I have very little to add except in the case of injuries. For instance, you have a man come in and his pupil is dilated from a blow on the eye. I think that gives you a good diagnostic point, or, rather, prognostic point, as to whether that man is going to have some paralysis of accommodation. If you find that he has a dilated pupil after a blow, he usually has some paralysis of accommodation. There is one condition in regard to the brain question that arises, if the eye symptoms of the pupil would only give us some differential diagnosis in the case, especially in the cavernous sinus thrombosis. In these cases the pupil gives you little or no diagnostic help except at the end, just before death. A few hours before death the pupils are suddenly dilated and stay dilated, and then you know the end is coming. The patient comes in to you with eye congestion, looking like pink eye, as the public calls it, but your pupil is contracted, the pupil is sluggish, won't dilate or anything of the kind. Then you want to look into the question of iritis. There is one test for blindness which we used in the army with the malingeringer, and also we had some cases of optic atrophy that got past the Board. The statement ordinarily is made that a blind person's pupil will not dilate or contract. The blind eye very often, whether through atrophy or complete atrophy, will contract once under sudden stimulus of light; then it dilates back to the point it was before, and that is all you are going to get out of it.

J. A. Patterson, Colorado Springs: There is one factor in regard to inequality in the size of the pupils that has not been mentioned. I don't know whether it has been run down to the ground, as it should be. When I began practicing here I was very much disturbed by finding a great many people whose pupils were of unequal size regardless of other conditions. I thought at first it was tuberculosis, as we had so many of them. That failed to explain it, or we failed to explain it; also, lashes failed to explain it. This kept worry-

ing me, so I had a conversation with Dr. Jackson about it, and he had noted the same thing, and he is here and he can probably tell you. Then, Dr. Boyd of Leadville wrote this matter up in a very thorough manner, and that was published in the transactions of this Society, and I think his conclusions were largely that it was altitude.

Melville Black, Denver: I would like to call attention to a little instrument that is a very simple one for measuring the size of the pupil. This instrument is used by the opticians for determining the thickness of a lens, and it serves us a very useful purpose. It is comparatively inexpensive. There is also one other point we ought to mention in regard to this subject: I think many of us are oftentimes confused as to what is the Argyll Robertson pupil. If you will bear this point in mind you will have no trouble at all in remembering what the Argyll Robertson pupil is. We should remember that the Argyll Robertson pupil is contracted as far as it is possible to be contracted by light. In other words, light will not contract the Argyll Robertson pupil any further. Remember also that accommodation is a more powerful contractor of the pupil than light, and in consequence accommodation will still further contract it. By remembering that point you will always remember what the Argyll Robertson pupil is.

Edward Delehanty, Denver: I am very glad that the ophthalmologists are taking part in this neurological affair of the changes of the nervous system manifested by changes in the condition of the eye. I wish to emphasize Dr. Neepers point which he made in his discussion, and that is the importance of interpreting or how to interpret these different things in the pupils. I find that a great many physicians misinterpret pupillary reaction. I remember very frequently in the clinical work in Denver we have had the pupils examine the eyes of different patients. It is very remarkable how differently each pupil interprets the condition of the eyes. One will say that it does not contract to light, another will say that it is an Argyll Robertson pupil, and another will say there is a difference in the size, and some will say there is not. It is purely a matter of interpretation, and the point the doctor makes here is to know how to interpret these phenomena in the eye. Of course, it is recognized by all educated physicians that changes in the pupillary reaction, differ in the size of the pupils in a great majority of cases, indicating central nervous system involvement. It is a very important matter to be able to interpret these conditions in the eye, especially where it is practically on the borderline, and it is only by practice that we can do it correctly. I wish to emphasize that point which Dr. Neeper has made here, that it is a point of great importance correctly to interpret these different phenomena.

W. H. Crisp, Denver: I think perhaps it is a little misleading to say that the pupil in infancy is smaller than in later life. In infants, the eyes are usually fixed promptly on the light, and you will probably find a contracted pupil, but I think you may lay down the rule that right through life the pupil tends to become smaller with advancing age. The question of how you direct the light is very important. If you are going to test the reaction of the pupil to light you must direct the light in the same way on both eyes; if you direct it on the macula in one eye you must direct it on the macula in the other. As regards the action of the pupil in blindness, the pupil in a blind eye will sometimes contract under the influ-

ence of light. The question whether the pupil of a blind eye reacts to light falling on the fellow eye will depend upon whether the lesion which cuts off vision is behind the pupillary center or in front of it. If it is behind, you may get a reaction to light falling upon the blind eye. As to the Argyll Robertson pupil, I used to remember the relationship by the fact that "A", for accommodation, comes earlier in the alphabet than "L", for light, the pupil reacting to "A" but not to "L".

J. J. Pattee, Pueblo: I want to speak in commendation of this paper. From beginning to end the content that he presented was fine, orderly, and true. A large portion of his paper will give the reader of it, the student of that paper, a fine background for the things that follow; therefore, I like the paper. There have been two or three things brought out in the discussion that I would like to speak of. I think it is very essential that we try and standardize these examinations. The doctor could not put all these things in. We have to take some of these things for granted. We will have to take it for granted that a good examination has been made. Another little point to add to that is that those people who have a slightly dilated pupil on one side from trauma, from being hit with a baseball or an apple, it produces a slight paresis. It is permanent, but it does not reduce vision very much, unless the interior of the eye is also impaired.

Dr. Hopkins (closing): I have nothing further to add to the discussion except in the matter of testing the light reflexes. I agree with what the men have said, and merely wish to add that in order to standardize our methods of testing and to interpret our findings correctly, I feel we should always make our tests under the same constant conditions of light and not under varying conditions.

THE GREAT PLAGUE

A personal experience of the plague is recorded by Johann Dietz (1665-1738) in his autobiography. Writing of his life as an apprentice barber-surgeon he says: "In particular I made a 'plague essence,' which, under God, proved our salvation and that of many others. My father gave everyone half a spoonful every morning.

"But whether I, through many encounters with the poison of the plague, really acquired it in this manner, the fact is that I and my brother were sent by my mother to bring a carp from Cröllwitz, but we found no one in the town, except that above the dam we came upon a camp of miserable people, old and young, many being sick of the plague. At last, thanks to a favouring wind, we crossed the water and obtained the carp; but I, at the same time, what with fear and horror, took the plague also home with me.

"My father perceived this immediately, for I was deathly pale and ill, with a violent headache. He gave me at once a spoonful of plague essence of my own making, took me in silence to the barn, and locked me in, so that no one could come to me, in order to see what turn matters would take. Thereupon I began to rave, but as I was powerless to do anything, and further, had no energy to do it, the strength of the medicine resulted in a broken blood-vessel, so that the blood flowed copiously from my mouth and nose; drenched in blood, I rolled about all over the barn; at last, completely exhausted, I fell into a deep sleep. Two days went by. During this time my father often came to see whether I was still alive. Since he now saw that I was awake,

speaking rationally and asking for food, he brought me a strong broth made from bullock's flesh. Little by little I recovered my strength, and no one subsequently contracted any disease from us."

THE DOCTOR'S ARRIVAL

It is not only for the sick man, it is for the sick man's friends that the doctor comes. His presence is often as good for them as for the patient, and they long for him yet more eagerly. How we have all watched after him! what an emotion the thrill of his carriage-wheels in the street, and at length at the door, has made us feel! how we hang upon his words, and what a comfort we get from a smile or two, if he can vouchsafe that sunshine to lighten our darkness! Who hasn't seen the mother peering into his face, to know if there is hope for the sick infant that cannot speak, and that lies yonder, its little frame battling with fever? Ah, how she looks into his eyes! What thanks if there is light there; what grief and pain if he casts them down, and does not say "hope!" Or it is the house-father who is stricken. The terrified wife looks on, while the physician feels his patient's wrist, smothering her agonies, as the children have been called upon to stay their plays and their talk. Over the patient in the fever, the wife expectant, the children unconscious, the doctor stands as if he were Fate, the dispenser of life and death; he **must** let the patient off this time; the woman prays so for his respite! One can fancy how awful the responsibility must be to a conscientious man; how cruel the feeling that he has given the wrong remedy, or that it might have been possible to do better; how harassing the sympathy with survivors, if the case is unfortunate—how immense the delight of victory!—Thackeray.

EARLY MENTAL HEALING

In every pain let this thought be present, that there is no dishonor in it, nor does it make the governing intelligence worse, for it does not damage the intelligence either so far as the intelligence is rational or so far as it is social. Indeed in the case of most pains let this remark of Epictetus aid thee, that pain is neither intolerable nor everlasting, if thou bearest in mind that it has its limits, and if thou addest nothing to it in imagination; and remember this too, that we do not perceive that many things which are disagreeable to us are the same as pain, such as excessive drowsiness, and the being scorched by heat, and the having no appetite. When then thou are discontented about any of these things, say to thyself, that thou art yielding to pain.—Marcus Aurelius (A. D. 121-180).

WHOLESALE SEPSIS

Dr. Campbell of Edinburgh, states that in October, 1821, he assisted at the post-mortem examination of a patient who died with puerperal fever. He carried the pelvic viscera in his pocket to the classroom. The same evening he attended a woman in labor without previously changing his clothes; this patient died. The next morning he delivered a woman with the forceps; she died also, and of many others who were seized with the disease within a few weeks, three shared the same fate in succession.

—Oliver Wendell Holmes, in "The Contagiousness of Puerperal Fever."

SYSTOLE

They know not their own defects who search for the defects of others.—Sanskrit Proverb.

Labor is the only prayer that is ever answered.—Elbert Hubbard.

The wise man should do at the beginning what the fool does at the end.—Spanish Proverb.

The man who weeps over the world will cry his eyes out.—Yugoslav Proverb.

Speak well of your friend; of your enemy neither well nor ill.—Italian Proverb.

Man can no more see the world than a fish can see the river bank.—Remy De Gourmont.

The wise weighs his words on the goldsmith's scale.—German Proverb.

We are the sum of all dead men, the sport of all past happenings.—J. H. Curle.

The character of a man depends on whether he has good or bad friends.—Japanese Proverb.

The wise warm themselves by the fire; the foolish burn themselves.—Yugoslav Proverb.

To question a wise man is the beginning of wisdom.—German Proverb.

A man's worst difficulties begin when he is able to do as he likes.—Thomas Huxley.

A fool is honored in his own house; a proprietor is honored in his own village; a king is honored in his own country; a learned man is honored everywhere.—Sanskrit Proverb.

DIASTOLE

The most expensive thing in therapy is the new aeroplane "cure" for deafness. The cost is fifty dollars a drop.

Ned's brother tried to beat the train to the crossing. Now Ned has two half-brothers.

"Was the doctor good to the poor?"

"He was so good to the poor that they made him one of them."

"Is Mabel short-sighted?"

"Yes, she's so myopic she wears glasses to powder her nose."

Yesterday a patient started for the Medical Building with a twenty-four-hour specimen. He's in jail for bootlegging.

"Colonel Better Following Stroke," says a newspaper headline. We presume that one more stroke would fully restore the colonel to health.

The Market Basket Page of the daily paper carries the following headline: Turkeys advance; chickens decline. This looks like material for the scandal sheet.

A sign at Florissant, Colorado, reads: "See the New Petrified Forest." We are glad they are not palming off old stuff on the tourists.

There was real excitement in Denver last week when a fire truck made a run down Sixteenth street at forty miles an hour. The driver was going home to lunch.

An ex-editor of Colorado Medicine has a new piece of evidence in favor of evolution. His eighteen-months-old son was taken by his mother to the zoo. On seeing the bears, the baby said "Oof, oof."—When they saw the wildcats, he called "Kitty."—On reaching the monkey cage, he delightedly exclaimed "Daddy."

NEWS NOTES

Dr. A. C. Craig has returned to Denver after spending several weeks at the New York clinics.

Dr. Rudolph Jaeger has been appointed physician for the Denver postoffice.

Colorado ophthalmologists and otolaryngologists who attended the recent meeting of the American Academy of Ophthalmology and Otolaryngology in Chicago from Oct. 20th to 22nd, are as follows:

Denver—Dr. Edward Jackson, Dr. Wm. C. Finnoff, Dr. D. H. O'Rourke, Dr. Chas. E. Walker, Dr. James M. Shields, Dr. D. G. Monaghan, Dr. H. L. Baum, Dr. T. E. Carmody, Dr. Wm. M. Bane.

Colorado Springs—Dr. Frank L. Dennis, Dr. Wm. V. Mullin, Dr. F. O. Kettlekamp, Dr. S. F. Chapman.

Greeley—Dr. Chas. A. Ringle.

Delta—Dr. H. A. Smith.

Boulder—Dr. Frank R. Spencer.

Pueblo—Dr. Fritz Lassen.

G. E. RICHMOND

Dr. George E. Richmond of Denver died suddenly of cardiac disease on Friday, October 23, 1925. Dr. Richmond was born at New Richmond, West Virginia, January 20, 1880. He attended the public schools of Macksville, Kansas, and took his collegiate degree at Marshall College, Huntington, W. Va., in 1901. After teaching for one year he began the study of medicine at the Louisville Medical School, from which he was graduated in 1906. The following year he spent in the office of Dr. Vance at Louisville and then came to Colorado where he first served as interne in the National Jewish Hospital for Consumptives. In February, 1909, he established himself in practice at Center, Colorado. Here he remained for twelve years, coming to Denver after a period of post graduate study, in May, 1921. In his chosen specialty, pediatrics, Dr. Richmond was most successful. He combined many of the qualities which make the ideal physician. He was cordial without sycophancy, modest without servility, generous without ostentation. He lived up to the finest traditions of the profession and he will long be remembered by those who met him in his daily work.

J. W. AMESSE.

ERRATA

The following corrections are indicated in the article by Dr. Henry Sewall, "A Historical Sketch of the Medical Department of the University of Colorado," which appeared in the November issue of Colorado Medicine:

On page 378 the records should contain the name of Dr. James C. Todd, Ph.B., M.D., as Secretary at Boulder, 1911-1915, and Ross C. Whitman, M.D., as Secretary at Denver, 1911-1915.

On page 368, line 14, left hand column, the word *euphoria* should read *euphrasia*.

On page 375, line 12, left hand column, *like* should read *life*.

On page 373, line 43, right hand column, *forward passing* should read *forward pressing*.

MEDICAL SOCIETIES

COLORADO GENERAL HOSPITAL

The following report as given out by the office of the superintendent covers very well the administrative activities of the institution from the medical view point. Dr. E. A. Bocock, the Superintendent, has been in charge for the past two months and has become familiar by now with the numerous activities which center about him.

It is to be hoped that the growth shown the past month will continue, for only in that way will the people derive the most in returns from their institution. This summary shows a healthy increase in every way over the previous month.

Patients in hospital October 1st.....	70
Number of patients admitted during month.....	146
Number of births during month.....	9
Number of patients discharged.....	144
Number of deaths.....	6
Patients in hospital November 1st.....	66
Number of counties represented.....	21

The increase in the number of the counties represented is gratifying and it is to be hoped that this will continue.

The Out-patient Department has shown the past month the expected seasonal growth as anticipated. These ambulatory cases are beginning to show a considerable percentage as coming from other parts of the state than the territory immediately adjacent to the institution. In time past this department was practically a local affair, but this day it is hoped, is past. There was a total attendance during the month of 2,369, with 466 new patients. This percentage of new cases is rather constant from month to month, and indicates that there is a wider and wider acquaintance developing among the people of the advantages offered by the clinic to those deserving of medical care.

Colorado Psychopathic Hospital

It seems apparent that this institution is fulfilling a much needed work for the people of this state. The medical men who have had the opportunity to follow the work done, either through individual cases, or by personal visit realize the need of such an institution.

The following report of the past month's activities given out by the office of the director indicates a considerable volume of work:

Number of new patients admitted.....	39
Number of counties represented.....	10
Number of patients in the hospital Nov. 1st.....	57

The majority of these patients are only present for a short time, similar in this way to the sister institution, the General Hospital. Cases of especial interest, or who require extended treatment with ultimate recovery are kept, otherwise they are discharged to make room for other cases who seek admittance.

There are also the other activities as the Out-patient's Clinic, Children's welfare, juvenile court work and consultation with the Staff of the Colorado General Hospital on cases in this institution that develop neurologic aspects. Although the two institutions are legally separate there is very close co-operation between them in every way, which makes for economy in effort and materials as well as greater efficiency in diagnosis.

E. R. MUGRAGE.

NEW BOOKS

- JEWISH SCIENCE AND HEALTH.** By Rabbi Morris Lichtenstein. 12mo. New York: The Jewish Science Publishing Company. Textbook of Jewish science.
- THE CONQUEST OF DISEASE.** By David Masters. 12mo. New York: Dodd, Mead & Co. \$2.50. With an introduction by Sir James Cantlie.
- FOOD AND HEALTH.** By R. H. A. Plimmer. 12mo. New York: Longmans, Green & Co. \$1.25. With colored frontispiece and diagrams in the text.
- THE HAPPY CHILD.** Edited by Dr. Henry L. K. Shaw. 12mo. New York: Dodd, Mead & Co. \$1. A sequel to "The Happy Baby."
- COLOR BLINDNESS.** By Marie Collins. 12mo. New York: Harcourt, Brace & Co. \$4.50. Giving the results of an investigation of color blindness carried on in the George Combe Psychological Laboratory at Edinburgh.
- OPIUM AS AN INTERNATIONAL PROBLEM.** By W. W. Willoughby. 8vo. Baltimore, Md.: The Johns Hopkins Press. \$4.50. The Geneva conferences.
- MENTAL DISORDER AND THE CRIMINAL LAW.** By S. Sheldon Glueck. 8vo. Boston, Mass.; Little, Brown & Co. \$7. A study in medico-sociological jurisprudence.
- PEDIATRICS OF THE PAST.** Compiled and edited by John Ruhrah, M.D. 8vo. New York: Paul B. Hoeber, Inc. \$10. An anthology dealing with the treatment of the diseases of children in the past.
- BIBLIOGRAPHY OF THE WRITINGS OF SIR WILLIAM OSLER.** By Minnie Wright Blogg. 12mo. Baltimore, Md.: The Lord Baltimore Press. Contains 730 titles.
- MODERN MEDICAL METHODS.** By Haydn Brown. 12mo. London and New York: Andrew Melrose, Ltd. The fundamental principles of treating disease and disorder, intended as a guide for those who desire good health and long life.
- THE MEDICAL SERVICES.** By Sir Andrew McPhail. 8vo. Ottawa, Canada: F. A. Acland. Part of the official history of the Canadian forces in the great war.
- A THEORETICAL BASIS OF HUMAN BEHAVIOR.** By Albert Paul Weiss. 12mo. Columbus, Ohio: R. G. Adams & Co. By the Professor of Psychology at Ohio State University.
- ALMOST HUMAN.** By Robert M. Yerkes. 12mo. New York: The Century Company. \$3. The behavior and mental life of primates.
- PROBLEMS OF PERSONALITY.** Edited by C. MacFie Campbell and others. 8vo. New York: Harcourt, Brace & Co. \$6. Studies presented to Dr. Morton Prince, pioneer in American psychopathology.
- THE MEDICAL FOLLIES.** By Morris Fishbein, M.D. 12mo. New York: Boni & Liveright. \$2. Including osteopathy, homeopathy, chiropractic and mental healing, and the fads of physical culture and health legislation.

MAGAZINE ARTICLES

- BLUNDERING PARENTS—WAYWARD CHILDREN.** By Florence Hull Winterburn. Current History, November.
- THE HUMAN WILL.** By A. Wyatt Tilby. Edinburgh Review, October.
- THE TOOTHBRUSH.** By Oliver T. Osborne, M.D. Good Housekeeping, November.
- THE FALLACIES OF CURRENT CANCER RESEARCH.** By Herbert Snow, M.D. Contemporary Review, October.
- THE TRUTH ABOUT WATER.** By Flora Rose. Delineator, December.
- I SAVED MY LIFE BY DISOBEYING THE DOCTOR.** By Allan Swinton. Cosmopolitan, December.
- THE AMAZING IMPORTANCE OF POSTURE IN CHILDREN.** By Harriet Wilde. Designer, December.
- SPIRITUAL HEALING—WHAT IS IT?** By Rev. Harold Anson. Hibbert Journal, October.
- THE ROMANCE OF SCIENCE IN POLYNESIA.** By Robert Cushman Murphy. National Geographic, October.
- CHRISTIAN SCIENCE HEALING.** By Charles W. J. Tennant. Nineteenth Century, October.
- MENS SANA IN CORPORE SANO.** By Rev. C. H. Prichard. Nineteenth Century, October.
- ASEPTIC SURGERY IN THE FOURTEENTH CENTURY.** By G. D. Hindley, M.D. Nineteenth Century, October.
- THE ORIGIN OF SPECIES.** By Smith W. Carpenter. Open Court, October.
- CITY HEALTH.** Survey, November 1.

CORRESPONDENCE

Editor, Colorado Medicine:

The irrelevant caption "A Military Christian Scientist", given to an article in your November issue, quoting a barber-surgeon of the sixteenth century military life in remarks about medical quacks tearing into strips the shirt of a wounded nobleman, placing the strips crosswise on the wounds, and eating a diet of prunes, and so forth, in unsuccessful treatment of the latter's wounds, can have no other purpose than invidious comparison. In consonance with your usual fairness will you please give space to this reply.

The article indicates that the nobles had personal physicians; common soldiers barber-surgeons or adventurers for their sole reliance. Further it would seem from the article that a nobleman had been wounded and felt it necessary to turn successively from his personal physician, no doubt of the then orthodox school, to the barber, and then to the tearer-of-shirts and vicarious eater-of-prunes for relief. It seems clear that the nobleman would not have turned from his physician had he been afforded satisfactory relief. Likewise it is apparent that the hundreds of thousands of highly intelligent people are turning to Christian Science, (and being healed) after fruitless search for relief elsewhere.

It requires little unbiased knowledge of Christian Science to see that tearing of shirts and vicarious eating of prunes is at least as far removed from Christian Science practice as it can be from accepted medical practice. Christian Science and accepted medical practice have

scarcely anything but sincere effort in common, because the former is a wholly spiritual, and the latter, a wholly physical, method of treatment. Why, then, classify Christian Scientists with quacks in physical practice, when the latter is entirely eschewed in Christian Science healing?

Christian Scientists are willing to let every school of healing, when as completely divorced from the state or from politics as religion, stand or fall on its own merit or demerit. In recommending against joining of medical leagues which might require them to participate in defense of medical charlatans, Mary Baker Eddy told her followers on page 80 of Miscellaneous Writings: "A league which obligates its members to give money and influence in support and defense of medical charlatans in general, and possibly to aid individual rights in a wrong direction—which Christian Science eschews—should be avoided. Anybody and everybody, who will fight the medical faculty, can join this league. It is better to be friendly with cultured and conscientious medical men, who leave Christian Science to rise or fall on its own merit or demerit, than to affiliate with a wrong class of people."

RALPH G. LINDSTROM,

Christian Science Committee on Publication

We regret that our captious caption has offended the Christian Science Committee on Publication, for admittedly the paragraph in question has no connection with Christian Science, having been written more than three centuries ago.

We join the committee in its condemnation of the prune-eater. As we review his tactics, it seems to us that he should have got across the river, and there administered absent treatment.—Editor.

Short Stories

To the Editor:

I am interested in compiling a collection of short stories written by doctors. As many of these stories are published under assumed names, or the medical degree of the author is omitted, it is difficult to locate them. I am, therefore, writing to ask that if you or your readers know of any short stories published by medical men you will kindly communicate the fact to me.

Assuring you that any information relative to this matter will be greatly appreciated, I am,

Very truly yours,

HAROLD HAYS,

22 West 74th St., New York City.

SUGGESTIONS TO AUTHORS

In submitting manuscripts to *Colorado Medicine*, authors are requested to comply with the following suggestions:

1. Typewrite your manuscript in double or triple space—never single space. Leave ample margin to right and left.

2. Write on whole sheets of paper—not half sheets.

3. Write your name on every sheet.

4. Furnish your top copy—not a carbon, which will smear with handling.

5. Avoid abbreviations, such as sod, bicarb., the Dr., P. S. P. test, R. Kidney, L. K., Sec'y., Assn., %, etc.

6. Follow standard form in bibliographies and references, observing the following details:

Give the author's initials or Christian name as

well as his surname. Follow with a colon (:) and then with the name of the book or article.

In the case of a book, give the edition, unless the edition referred to is the first. Give the page referred to. Follow with the place and year of publication, and the name of the publisher.

In the case of an article, follow the title with the name of the journal. If abbreviations are employed, use those approved by the American Medical Association. (See "Suggestions to Medical Authors and A. M. A. Style Book" supplied by the American Medical Association, 535 North Dearborn street, Chicago, at a cost of twenty-five cents, or lent without charge by *Colorado Medicine*). Follow the name of the journal with the year of publication, and then with the volume and page number.

Follow the general form given below:

1. Lovett, Robert W.: *The Treatment of Infantile Paralysis*. Second edition, page 78. Philadelphia, 1917. P. Blakiston's Son & Co.

2. Timme, Walter; *Lectures on Endocrinology*, pp. 48-62. New York, 1924. Paul B. Hoeber, Inc.

3. Favill, John and Charles F. Rannick; *A Case of Family Periodic Paralysis*, *Archives of Neurology and Psychiatry*, 1924, vol. 11, p. 674.

4. Joslin, Elliott P.: *Diabetic Problems of Today*, *Jour. Am. Med. Assn.*, 1924, vol. 83, p. 727.

BOOK REVIEWS

1924 Collected Papers of The Mayo Clinic, Rochester, Minn. Octavo of 1,331 pages, 254 illustrations. Philadelphia and London. W. B. Saunders Company, 1925. Cloth, \$13.00 net.

This volume of approximately thirteen hundred pages comprises the published work of one hundred and sixty members of the Mayo Clinic Staff for the last year. The papers are printed in full, in abstract, or by caption only. They are well grouped as to subject matter, and carefully indexed, thus making readily available the clinical and laboratory findings of this important medical group. Of unusual interest to all medical men is the experimental work on the physiology of the liver and gall bladder, duodenal intoxication, chronic ulcerative colitis, iodine and its place in goitre management and "optimal" diabetic diets. Many other papers are of equal importance but of special interest only to a limited group.

C. F. KEMPER.

Diseases of the Bronchi, Lungs, and Pleura. By Frederick T. Lord, M.D., Visiting Physician, Massachusetts General Hospital; Instructor in Medicine, Harvard Medical School. Second Edition, Thoroughly Revised with the addition of a Chapter on Pulmonary Tuberculosis. Illustrated with 107 Engravings and 3 Colored Plates. Lea & Febiger, Philadelphia and New York. Price \$8.00.

This book offers the internist a chance to review quickly what is actually known about the diseases of the bronchi, lungs and pleura. Very little space is devoted to questionable procedures, either as regards diagnosis or treatment. Great care in the selection of references is one of the outstanding features of the book.

The subject of tuberculosis, which did not appear in the first volume, is concisely treated in this volume. It serves as a ready reference for

the general practitioner, but would hardly satisfy those who are especially interested in the subject.

Thoracoplasty and pneumothorax are carefully considered and a sane judgment is given of their respective places in treatment.

Treatment is considered in Oslerian fashion, adding greatly to the value of the book, in that only tried methods of treatment are given. The fantastic prescriptions and bizarre methods so frequently found in the old textbooks are fortunately eliminated. The acid test is also applied to diagnostic procedures. The reviewer recalls a clinic held at the Massachusetts General Hospital in 1921 before a group of physicians. Dr. Lord gave the clinical history and physical examination of the chest cases and the diagnosis without assistance of the radiogram. The radiologist then displayed the films and made the diagnosis without reference to history or physical examination.

No better illustration of the fallacy of independent diagnoses could have been given. The same type of open, rational presentation is manifest in Lord's book and is worthy of imitation.

The climatic treatment of tuberculosis is considered in the following superficial manner: "Climate, per se, has not been shown to have therapeutic value in tuberculosis.—Other things being equal, the outlook is as good in one place as another." No reference is found to climate in the index.

Certainly this subject is worthy of a more careful consideration in a work of this character. The typography, illustrations and proof-reading are beyond criticism. The index is not worthy of the high standard maintained by the rest of the book. The volume will prove a handy and reliable reference book for those who have not the time to go into the more detailed works dealing with the diseases of the chest.

A. S. TAUSSIG.

The Medical Clinics of North America. Volume viii, Number v, March, 1925. Boston number. Octavo of 247 pages and 21 illustrations. Per clinic year (July, 1924, to May, 1925), paper, \$12.00; cloth, \$16.00 net. Volume viii, Number vi. Boston number, May, 1925. Octavo of 278 pages and 47 illustrations and complete index to Volume vi. Paper, \$12.00; cloth, \$16.00. Philadelphia and London: W. B. Saunders Company.

These two numbers are reviewed together as they are both from Boston. The March number has 19 contributors and 22 articles. The May number has 20 contributors and 17 articles. The Boston number of the Clinics is always good, and this is a sort of double-header. We note with interest, an M.D., LL.D. among the contributors; an *Avis rara*, among medical men. (Any in Denver?) All of the 39 articles are good reading; two on gout, emphasize what any general practitioner knows: that this is a rare rather than a frequent disease. We rarely see it in the reports of our Denver General Hospital. An article on urinalysis has some suggestions that may be new, too. An article on basal metabolism is good. We consider these clinics about the "last word" in Internal Medicine. The method of diagnosis and treatment by the different men in the different hospitals is very interesting. It will certainly soon be Denver's turn to furnish a number. Maybe we can find an M.D., LL.D. too.

J. T. ELLIOTT.

The Surgery of Pulmonary Tuberculosis. By John Alexander, B.S., M.A., M.D., Assistant Professor of Medicine in the Medical School, University of Michigan; Formerly Assistant to the Professor of Clinical Surgery, University of Pennsylvania; Formerly Member of Surgical Staffs of Hospital Militaire, v.r. 76, Ris-Orangis, France, and U. S. A. Base Hospital No. 115, A. E. F., Vichy, France; Member American Association for Thoracic Surgery, Etc. With introductions by Hugh Cabot and Edward R. Baldwin. Three hundred sixty-five pages, with illustrations, fifty-three engravings and twelve plates. Price \$4.50. The Lea and Febiger Company, Philadelphia and New York, 1925.

This excellent and admirably compiled volume is the first complete general review in English literature on the surgical treatment of pulmonary tuberculosis. The author relates briefly, under the evolution of surgical therapy, the procedure developed by various workers in this field of thoracic surgery during the past forty years with photographs of the different pioneers in their respective countries. This is followed by a concise description of the physiological and anatomico-pathological factors in pulmonary compression, which constitute the basis of the various surgical measures advocated in phthisis. The major portion of the book is devoted to consideration of the various features of paravertebral thoracoplasty, the most frequently performed operation with definite results in pulmonary tuberculosis, viz.: indications and contraindications, thoracoplasty versus artificial pneumothorax, anesthesia, choice of operations with description of Wilms-Sauerbruch and Brauer technics, pre- and post-operative management and results with illustrations.

Short concluding chapters cover the relatively recent procedure of radical phrenicotomy, and its advantages supplementary to artificial pneumothorax or thoracoplasty, as well as extra- and intra-pleural pneumolysis, and lastly, tuberculous effusion and empyema.

The writer has alphabetically tabulated by authors the results of 1,159 paravertebral thoracoplasties reported in medical literature from 1918 to 1925; 36.8 per cent were cured and 24.4 per cent improved, while the total mortality was 33.5 per cent (19.4 per cent being due to causes not connected with operation but chiefly to tuberculosis in the unoperated lung). Finally, there is a complete bibliography on the surgery of pulmonary tuberculosis for the years 1918 to 1924 (incl.), alphabetically arranged by authors, with numerical references to the many text quotations.

Dr. Alexander has rendered a most valuable service in his comprehensive treatise on this greatly needed and little appreciated subject in America, which can be read with incalculable profit by every medical practitioner, as few physicians and even surgeons today are aware of what surgery can really accomplish in pulmonary tuberculosis. Such enlightenment will not only save the lives of many of the estimated 30,000 persons with phthisis in this country, who are proper subjects for surgical therapy, but also by earlier operation at a more favorable stage of this disease will materially lower the mortality, as well as improve the end results of thoracoplasty.

WM. H. THEARLE.

Fifty-fifth Annual Session of the Colorado State Medical Society

Held at Colorado Springs, Colorado, September 29, 30 and October 1, 1925

PROCEEDINGS OF THE HOUSE OF DELEGATES

DIGEST OF THE MINUTES

Secretary's report shows total active membership of 1042, gain of 19. Page 441.

Treasurer's report shows total balance on hand \$7,646.39. Special fund for education of the public \$3,791.52; Jubilee Volume fund, \$421.70; general fund, \$3,433.17. Increase in special fund, \$1,725.52; decrease in general fund, \$934.13. Page 442.

Report of Publication Committee shows cost of publication of Colorado Medicine as \$6,896.29 (deficit over appropriation of \$546.19).

Committee on Medical Literature reports purchase of twenty-nine volumes and acquisition of eighty-one volumes through Colorado Medicine. Total number of volumes in library, 1,458.

Special committee appointed to study model constitution and by-laws for state societies submitted by American Medical Association. Page 448.

Appropriations for 1925-1926. Page 448.

Committee on Public Policy authorized to act with regard to furnishing assistance for public lectures and demonstrations, utilizing available men who by previous experience have demonstrated their ability in such work. Page 450.

President directed to appoint a committee of three to cooperate with Boy Scout officials in formulating health regulations and standards for Boy Scout camps in Colorado. Page 451.

Election of Officers. Page 452.

Resolution by House of Delegates expressing thanks to City Manager and City Commissioners of Colorado Springs, Police Department, Chamber of Commerce, the Gazette Telegraph, Committee on Scientific Work and Committee on Local Arrangements. Page 452.

Resolution by commercial and scientific exhibitors expressing appreciation and gratitude to Dr. E. D. Downing. Page 452.

President to appoint local committee of three at Colorado Springs to care for historical exhibits. Page 453.

Total registration of members, 333; visitors, 16.

MINUTES IN DETAIL

First Meeting of the House of Delegates, September 28, 1925

The meeting was called to order at 8:15 o'clock p. m., by the President, Dr. Henry Sewall.

The Secretary called the roll, and the President announced a quorum present.

On motion, seconded and carried, the minutes of the preceding annual meeting were adopted as published in Colorado Medicine.

With the consent of the House, the regular order of business was suspended and Dr. D. A.

Strickler, for reasons of expedience, was allowed to submit the report of the Committee on Public Policy. The report, after discussion by T. E. Carmody and T. R. Love, was tabled for reference to the Committee on Reports of Committees, when duly appointed.

The report is as follows:

REPORT OF COMMITTEE ON PUBLIC POLICY

Your Committee begs leave to report:

1st. That there were no bills bearing on public health submitted to popular vote by initiation and referendum at the last general election.

2nd. That many bills were presented to the legislature, but owing mainly to antagonisms between the House and Senate on political matters, little legislation of any kind was enacted. The bills affecting public health were of greatly varying character and purposes. The origin and purpose of many of them remained a profound secret so far as your committee were concerned. The general situation was most anomalous. Until late in the session it was impossible to learn the details of bills. They were practically all introduced by title toward the close of the time for introducing bills, and not accessible to your committee until printed, which, in most instances, was late in the session, when the general situation was such that no effective work was possible. Perhaps earlier knowledge would have been of little avail.

Attempted medical legislation falls in three general classes:

A. Appropriations for maintenance of existing institutions, and for the construction and maintenance of new ones.

B. Legislation bearing upon administration of medical affairs, such as registration, boards of health, State Care of the Blind, etc.

C. Miscellaneous: Liquor prescriptions, the Lye Label Act, etc.

Appropriations for the State General Hospital, the Colorado Psychopathic Hospital, the Medical Department of the State University, and the Colorado State Hospital, Pueblo, were of special interest to your committee. The attitude of the Legislature generally was favorable to all of those institutions, but with the demand from so many sources—bills calling for more than sixteen millions with only a little more than four millions available—it became a tough problem for House and Senate Committees on Appropriations and Finance to equitably distribute the smaller amount with anything like adequate support for these institutions. We are pleased to be able to report that the budgets for the Colorado General and the Colorado Psychopathic Hospitals were cut only 15%, which was the minimum cut made for any measure. Unfortunately, this small cut is sufficient to curtail to some extent their efficiency for the present biennial period. The Psychopathic Hospital, which is distinctly a child of this Society, had a close call, because late in opening, its efficiency was not in evidence, and its purposes not fully comprehended by the above named, hard-pressed com-

mittees of the House and Senate. Your Committee was able to do some effective work at the psychological moment. These two institutions are destined to need the moral and active support not only of this Society as such, but of its membership in general for many years to come. In the final analysis their success in getting adequate funds to properly function must depend largely upon efficient, economical management, well sustained equitable policy, and judicious publicity.

The Colorado State Hospital of Pueblo was denied a sum for improvements and furnishing, being allowed only a sufficient amount for per capita costs.

The most important new work was the passage of an act providing for the construction of a new cottage at Ridge, for the feeble minded. This cottage is to be built during the present biennial period and will provide for the care of fifty, which is but a small portion of those awaiting and in need. Judge Luxford and Senator Knauss are entitled to credit for much efficient labor in the interest of the measure.

There were but two bills relating to licensure to practice medicine introduced:

One introduced by Mr. Holcomb of the House, which prescribed conditions which perhaps no man in the State could meet, and impossible of administration—its purpose unknown. It died in the committee.

Second, sponsored by your committee, entitled an "Act relating to the practice of medicine," which provided that no one should be eligible to a license to practice the healing art in any of its departments, who does not hold a diploma from a college recognized by the Colorado State Board of Medical Examiners. This bill was not to our knowledge opposed by any of the schools or the cults. Its opposition came from individuals who felt that the discretion of the Board should be curtailed instead of increased. In the opinion of the Committee, a few holding medical licenses, but whose methods of practice are questionable, as a consequence thereof feared a wholesome discretion by the board, and wielded an undue influence in the amendments adopted by the House. The amendments were of such nature as to render acts of the board involving discretionary powers, null and void, throwing all questions of jurisdiction into the District Court, so that friends of the original bill were constrained to work for the defeat of the amended bill. The failure of this bill we deem a misfortune to Colorado, as we are the only state in which some such provision has not been made, and we, as a consequence, are the dumping ground for the fake schools and those without educational credits. The condition should not be allowed to exist, and we believe a well sustained effort by this Society can correct it.

While radical measures in medical registration are of doubtful expediency it seems to your committee that two general provisions preliminary to licensure should be sought through legislative enactment.

1. No one should be eligible to licensure to practice the healing art by any method or system unless he first present a certificate showing fundamental education of a reasonable character, issued by a properly constituted board of education.

2. No one who is not a graduate of an acceptable college of the healing art should be eligible to licensure to practice the healing art by any method or system.

The general principle of broad discretionary power in the board of medical examiners should be carefully guarded.

In the matter of board of health measures, the fight centered on a bill to abolish the State Board of Health, delegating part of its responsibilities to county health organizations, and omitting others entirely. Organized medicine had a model bill providing for the "reorganization" of the Board of Health to substitute, but the general conditions were such that nothing could be accomplished.

A bill to abolish the Board of Nurse Examiners was seriously considered but failed to pass.

A bill to provide for the State care of the Blind was drawn by members of your Committee, and with slight modification passed both Houses and is now in force with Dr. Edward Jackson as a member of the Commission.

Your Committee feels that this is a definite step in the right direction. As the provisions of the act will be considered in some detail by a report to this body by Dr. Jackson at this session, further comment is deemed unnecessary in this report.

Under the head of Miscellaneous Bills, a number of liquor bills were introduced, mainly attempting to liberalize the law and to permit larger quantities to be prescribed by physicians. None was passed.

The "model lye bill" conforming to the national standard act, providing for poison labeling of lye containers, was passed.

In the matter of publicity, we herewith submit Dr. Sanford Withers' report:

"September 26, 1925.

"Medical Lectures for the Public Series, 1924-25.

Ten lectures and demonstrations.

Approximate cost, \$1,600.00.

Approximate attendance, 8,000.

Subjects:

- (1) The Miracle of the X-ray.
- (2) The Magic of the Microscope.
- (3) Vitamines.
- (4) The Man of 1940.
- (5) The Truth about Glands.
- (6) Teeth; Friends or Foes.
- (7) Cancer.
- (8) Medical Frauds.
- (9) The Dangerous Age.
- (10) Casting Out Devils.

Notes:—These lectures take an unbelievable amount of time by one or two individuals (estimated at 3 to 4 entire days) but such expenditures of time and money are justified by the interest shown by the public.

The Colorado State Medical Society furnished about \$250.00 for these programs.

Sanford Withers, M.D."

In view of the large amount of time taken and the difficulty of finding busy men who are willing or can afford to give the necessary time, your Committee recommends that this Society carefully consider the advisability of a full time secretary or other officer, one of whose functions shall be the direction of suitable publicity.

All of which is respectfully submitted,

DAVID A. STRICKLER, Chairman.

EDWARD JACKSON,

JEAN GALE,

W. W. KING,

O. M. GILBERT,

CRUM EPLER,

C. A. RINGLE.

The Secretary, as ex-officio Chairman of the

Committee on Credentials, stated that there had been no questions referred to that Committee for decision. He stated that all who had responded to the roll call were duly certified representatives of their respective Constituent Societies, the apportionment of delegates being as follows:

REPORT OF COMMITTEE ON CREDENTIALS

Society	Number of Members December 31, 1924	Delegates
Arapahoe	9	1
Boulder	46	2
Chaffee	8	1
Delta	21	1
Denver	503	21
El Paso	103	5
Fremont	19	1
Garfield	13	1
Huerfano	10	1
Kit Carson	12	1
Lake	8	1
Larimer	28	2
Las Animas	24	1
Mesa	19	1
Montrose	7	1
Morgan	11	1
Northeast Colorado	27	2
Northwestern Colorado	11	1
Otero	26	2
Prowers	16	1
Pueblo	69	3
San Juan	16	1
San Luis	16	1
Teller	2	1
Weld	38	2

Total membership December 31, 1924, by which apportionments are made 1,062
Total possible delegation 56*

*Total delegates seated during session, 35.

F. B. S.
F. B. STEPHENSON, Chairman.
M. C. ALBI,
E. P. HUMMEL.

The President then announced the appointment of the following committees:

Reference Committee on Reports of Officers: H. A. Smith, A. H. Early, J. M. Shields.

Reference Committee on Reports of Committees: W. H. Crisp, A. H. Harris, W. W. Crook.

Reference Committee on Miscellaneous Business: J. B. Crouch, W. C. Finnoff, L. W. Bortree.

Committee on Appropriations: H. T. Low, Ella Mead, R. E. Holmes.

The following were nominated as members of the **Nominating Committee:** R. G. Smith, Denver; L. W. Bortree, Colorado Springs; H. T. Low, Pueblo; R. E. Holmes, Canon City; G. C. Cary, Grand Junction.

On motion, seconded and carried, nominations were closed and the Secretary instructed to cast a unanimous ballot for the five nominees.

Under the order of business "Reports of Officers," the President made the following verbal report:

REPORT OF THE PRESIDENT

"I want to say that during the past year the subject that we have heard presented here a

moment ago, the question of public lectures, deserves more than passing notice. I fear from hints that I have received that that project is to fall by the wayside this year. I know of no arrangement for continuing these lectures. I may be mistaken; but it does seem a pity. Those lectures have been a vast success, and they have come, as it were, out of chaos. They had no ancestor, but they did great work. If we could continue those lectures, or some similar enterprise, it would work vast good, I won't say to the aggrandizement of the medical profession, but to the aggrandizement of the people, and these lectures should be kept before them in some such way.

"I feel that the suggestion made for a full-time secretary to take hold of that business and to initiate it, would be highly commendable. It is not the office we fill; it is the man who fills it, whatever you call it, and it seems to me that it is a thing that deserves very careful attention. I wish someone would feel moved to take this up and discuss it before this House.

"The indications are that we are starting here under new officers, and are to see a banner year. I think that the way in which all of the members so far as I know have cooperated in this meeting, is most encouraging."

On motion, seconded and carried, the report was approved.

The Secretary, Frank B. Stephenson, then submitted the following report:

SECRETARY'S REPORT

The clerical work of the Secretary has increased considerably in volume. Briefly it consists of keeping membership records, getting reports from county societies, with remittances, reporting members to the American Medical Association, answering numerous inquiries about membership, answering numerous statistical questionnaires which come from social service organizations, from secretaries of other state societies and the American Medical Association; correspondence with heads of departments in Washington over legislative matters, correspondence with local societies and members, etc. The amount of stationery and stamped envelopes used has more than doubled.

The Secretary was directed at the last annual meeting to cooperate with the A. M. A. in trying to secure from the United States Treasury Department, the privilege for doctors of deduction from their income tax returns, traveling expenses to and from postgraduate schools and to and from medical society meetings. Formal petitions have been prepared and forwarded to the President of the United States, to heads of departments in Washington and Senators and Representatives from Colorado. The endorsement by nearly all of our constituent societies was obtained and the Secretary wishes at this time to compliment the constituent societies in general for their willing cooperation in matters of this kind when it has been asked for. Included with the grievances above mentioned was a request for lessening or abolishing the narcotic tax on physicians. These matters are still being vigorously prosecuted by the American Medical Association and by a number of other state medical societies.

Extended correspondence with public officials was also carried on with regard to postal rates on scientific journals and I believe the revision of rates was finally considered satisfactory by the American Medical Association and that something was definitely accomplished

through the efforts of the various state societies.

The Bureau of Legal Medicine and Legislation of the American Medical Association has sent out questionnaires to all state societies on the matter of medical defense. When these data have been correlated and digested there will probably be issued from the American Medical Association a definite program for state societies who wish to undertake such a plan.

Several other pending matters will be brought up as agenda for the present meeting.

The following is a statistical report of membership and of receipts and disbursements.

Honorary Membership

I have gone over the list of honorary members as published in the past from time to time and find the complete list as near as I can determine to be as follows: (Those not now appearing in the A. M. A. Directory are presumed not to be living.)

Deceased

J. G. Adami, Montreal.
Robert H. Babcock, Chicago.
F. J. Bancroft, Denver.
O. D. Cass, Denver.
D. H. Dougan, Denver.
Honorable John Evans, Denver.
John Elsner, Denver.
Eleanor Lawney, Denver.
H. A. Lemen, Denver.
Lt. Col. H. Lippincott, U. S. Army.
W. F. McClelland, Denver.
C. B. Nancrede, Ann Arbor.
Frank Norbury, Prof., St. Louis.
Thos. F. Rambold, St. Louis.
John B. Roberts, Philadelphia.
E. C. Schneider, Colorado Springs.
W. M. Strickler, Colorado Springs.
W. R. Whitehead, Denver.
H. D. Niles, Salt Lake City.
Emil H. Beckman, Rochester, Minn.

Existing

Livingston Farrand, Ithaca, N. Y.
T. H. Hawkins, Plainfield, N. J.
C. K. Mills, Philadelphia.
Francis Ramaley, Boulder.
John Ridlow, Chicago.
Victor C. Vaughan, Ann Arbor.
R. C. Cabot, Boston.
Lewis L. McArthur, Chicago.
Chas. H. Mayo, Rochester, Minn.
L. B. Wilson, Rochester, Minn.
Wm. R. Tyndale, Salt Lake City.

Reinstatements and New Membership for Old Year (1924)

Society	Members	1924 Dues
Denver	4	\$20.00
Fremont	1	5.00
Weld	1	5.00
Prowers	1	5.00
El Paso	7	30.00
Boulder	1	5.00
	15	\$70.00

(\$5.00 credit to El Paso County, 1924.)

Paid Membership for 1925

Society	Members	Society	Members
Arapahoe	9	Fremont	21
Boulder	44	Garfield	11
Chaffee	8	Huerfano	11
Delta	20	Kit Carson	9
Denver	512	Lake	7
El Paso	101	Larimer	27

Las Animas	22	Prowers	16
Mesa	20	Pueblo	64
Montrose	7	San Luis	14
Morgan	10	San Juan	18
Northeast	22	Weld	32
Northwest	11	Unattached	2
Otero	26		
			1,044

Total 1925 memberships paid _____ 1,044 at \$5.00 _____ \$5,220.00

Total receipts from dues _____ \$5,290.00

Divided, Special fund _____ \$2,116.00
General fund _____ 3,174.00

Received from Federal Reserve Bank _____ 1.00

Refund Library, book returned _____ 2.25

Funds received from Colo. Med.
and remitted to Treasurer _____ 3,917.93

Total receipts remitted to Treasurer _____ \$9,211.18

Membership Analysis

Active membership last report (1924) _____ 1,023
New paid members 1925 _____ 84
Transferred in from other states _____ 0
Reinstatements _____ 47

1,154

Died since without renewal _____ 6

Dropped for non-payment, removed

without transfer or resigned _____ 104

Transferred out _____ 0 110

Total active paid memberships _____ 1,044

Deaths after renewal _____ 2

Existing members _____ 1,042

Active membership last report _____ 1,023

Gain _____ 19

Total vouchers issued _____ \$11,703.20

Investment voucher _____ 3,052.50

Other expenditures _____ \$ 8,650.70

Delegation to American Medical Association:
New apportionment, 1926-7,8—1 each 750 or fraction.

F. B. STEPHENSON, Secretary.

The Treasurer, W. A. Sedwick, submitted the report of the Treasurer, which is as follows:

TREASURER'S REPORT

For period from October 1, 1924 to September 28, 1925.

RECEIPTS

Cash in bank last report _____ \$5,855.00

Gold Bond (Denver Dry

Goods Co.) _____ 3,000.00

Liberty Bond, face value _____ 1,000.00

Received from Secretary

for Dues _____ 5,291.00

Received from Secretary

on account of Colorado

Medicine, for advertising,

subscriptions, etc. _____ 3,917.93

Interest on Savings Ac-

count _____ 60.91

Interest on Liberty Bond _____ 42.50

Interest Gold Bonds _____ 180.00

Refund, C. R. Troth,

Credit to Library Fund _____ 2.25

\$19,349.59

DISBURSEMENTS

Journal Maintenance

Western Newspaper Union (printing Journal)	\$ 4,786.87
Commissions El Paso County Medical Society Special Advertising	87.33
Editor's Salary	300.00
Editor's Commissions on Advertisements	807.54
Editor's Clerk's Salary	600.00
Incidentals: Western Newspaper Union \$23.70; Science Service \$60.00; Stationery, etc. \$39.55; Post-office deposit \$50.00; Editor's Incidental account \$141.30	314.55

\$ 6,896.29

Secretary's Office

Secretary's Salary	\$ 200.00
Secretary's Clerk's Salary	240.00
A. M. A. Directory	12.00
Incidentals (postage, stationery, etc.)	143.88
Property (cabinet)	45.00

\$ 640.88

Library

Colvin Brothers (books)	\$ 104.88
D. Appleton Co. (books)	42.30
Medical Society City and County of Denver	9.00

\$ 156.18

Committee on Careers of Members

Mutual Multigraphing Co.	\$ 36.45
Kistler Stationery Co.	1.45
Balaban Brothers (Biographic cards and stamped envelopes)	45.50

\$ 83.40

Special Fund

W. H. Stuver, Treas. Med. Society City and County of Denver	\$ 328.18
Colorado Medicine (101 copies for publicity purpose)	15.66
Thomas Multigraphing Co.	9.20
D. A. Strickler (incidentals, Committee on Public Policy)	37.44

\$ 390.48

Annual Meeting (1924)

Hunter, March & Co., programs, etc.	\$ 54.95
St. Louis Button Co. (badges)	27.40
Baltes Co., Delegate Badges	4.75
S. E. Anderson, Registrar	15.00
J. J. Waring, expense on programs	10.00
Park Floral Co., flowers	10.72

J. H. Carpenter, Reporting Annual Meeting	241.40
H. L. Baum, account of visiting guests	100.00

\$ 464.22

Membership Committee

Stationery, etc.	\$ 19.25	\$ 19.25
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Investment Committee

Van Riper, Day & Co. 6 per cent Gold Bonds and interest	\$3,052.50	\$ 3,052.50
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Total disbursements \$11,703.20

RECAPITULATION

Total Receipts	\$19,349.59
Total Disbursements	11,703.20

On Hand	\$ 7,646.39
Liberty Bonds	\$1,000.00
Gold Bonds	3,000.00
Savings Acct.	3,432.12
Commercial Acct.	214.27

\$7,646.39

Special fund for education of public in medical affairs	\$ 4,182.00
Vouchers issued against this fund	390.48

Balance in this special fund	\$ 3,791.52
Jubilee Volume Fund	421.70
General Fund	3,433.17

Balance on hand 1925 \$ 7,646.39

Balance on hand 1924 6,855.00

Increase	\$ 791.39
Gain in Special Fund	1,725.52
Loss in General Fund	934.13

Net Gain \$ 791.39

W. A. SEDWICK, Treasurer.

G. H. Curfman then submitted the report of the Delegates to the American Medical Association. The report is as follows:

REPORT OF DELEGATES TO THE AMERICAN MEDICAL ASSOCIATION

I will attempt, in submitting the report of the Meeting of the House of Delegates of the American Medical Association, to abstract the essentials, such as shall pertain to the proper functioning of our own House of Delegates in its relations with the parent organization.

This report, for the sake of brevity, will be divided into

- (a) Report of Councils.
- (b) Report of Committees.
- (c) Report of Addresses to the House of Delegates.

- (d) Report of Election of Officers.

The Report of the Secretary of the American Medical Association was printed in the Journal of the Association prior to the meeting of the House of Delegates.

The Report of the Board of Trustees dealt mainly with the finances of the Association. The loss on the publication of Hygeia for 1924 was \$42,745.14. It behooves us to use our best efforts towards an increase in its circulation.

Report of the Judicial Council

The Judicial Council under the Chairmanship of Dr. M. L. Harris, of Chicago, and assisted by Dr. J. N. Hall, has labored faithfully during the

past year in the study of the activities of the various commercialized organizations doing periodic health examinations. At the Chicago Meeting this Council presented a supplementary report dealing with the specific question, "Shall the Medical profession vend its products directly to the consumer or shall it sell them to a middleman or third party?" This brought forth objections from the organizations which were making these examinations for a price much above that paid the physician for doing the work. The Judicial Council at that time expressed its conviction "that the communication of results of physical examination and general advice with which it should be associated should go directly from the individual physician to his patient." At the recent meeting in Atlantic City, this Council fully established the soundness of the position which it took in Chicago. Their report was heartily approved by the House of Delegates and the following resolution was adopted.

RESOLVED, That it is the sense of this House of Delegates that periodic health examinations should be conducted by medical men and neither dominated by nor controlled by lay organizations, for the reason that the relation between the patient and the physician is an individual matter and anything that disturbs such relationship is detrimental to the best interests of the patient; and be it further

RESOLVED, That it is the sense of this House of Delegates that every Fellow and member of the American Medical Association, should live up to the spirit and letter of this resolution.

Report of the Council on Medical Education and Hospitals

Pertaining to short course Post Graduate Schools, the following resolution was adopted:

WHEREAS, Certain so-called short course post graduate schools and laboratories are advertising two and three weeks' training as sufficient to produce a product capable of performing any major operation, and

WHEREAS, Men of prominence and power are innocently or otherwise, lending their names to add stability to these institutions, be it

RESOLVED, That in the opinion of the members of the American Medical Association the indiscriminate organization of unscientific courses, commercial postgraduate schools or laboratories admitting untrained students is bringing disgrace upon the surgical profession, and is decidedly detrimental to the general public, and be it further

RESOLVED, That the American Medical Association through the proper officers call attention of all state and county societies to the danger of these institutions and urge upon the two latter to advise their members of the necessity of withdrawing their support from this or any other scheme affecting the high standards of the medical profession.

More ethical standards were recommended in hospital publicity with further recommendations that hospital service be improved and made accessible to all reputable physicians in their community. Further study of investigation of the nursing problem was recommended.

Report of the Reference Committee on Amendments to the Constitution and By-Laws

Section 3, Article 5 of the Constitution was amended to read—"The total voting member-

ship of the House of Delegates shall not exceed 175."

The following proposed amendment to the By-Laws was submitted—"At the Annual Session of 1925 and every three years thereafter, the House of Delegates shall appoint a committee of five on re-apportionment."

The members from this State in the House of Delegates were interested in maintaining Colorado's quota of membership in that body and fortunately the re-apportionment did not affect us. However, a study of our membership reveals the fact only 59 per cent of the Medical men of the State are in the State or its constituent Societies. It is necessary that we maintain our membership well over the thousand mark so that we will not suffer a loss in representation through future re-apportionment.

The Section of Stomatology was abolished and the establishment of a Section of Radiology was recommended.

Report of the Special Committee on Constitution and By-Laws

The Special Committee on Constitution and By-Laws presented a form of constitution for all the constituent State Societies and recommended the adoption of this new form so as to insure uniformity among the states, enabling them to cooperate more closely and satisfactorily with the American Medical Association.

Our State Secretary has probably been supplied with the form of the proposed constitution and I would suggest the appointing of a special committee to consider the advisability of its adoption and to make such recommendations at the next Annual State Meeting.

Report of Committee on Compensation for Eye Injuries

"The aim of the committee is to establish a method of determining the loss of visual efficiency of a person who has suffered any degree of impairment of vision as the result of occupational disease or injury. Such loss is to be the basis on which the amount of compensation shall be determined."

The report is lengthy and technical and is printed in the Proceedings of the House of Delegates for 1925.

Report on Reference Committee on Legislation and Public Relation

The following was recommended:

(a) That the war tax on Physicians, under the Harrison Act be abolished.

(b) That traveling expenses necessary for attendance at Medical Meetings and expenses for post graduate study be deductible from income tax returns.

(c) That the American Medical Association maintain an accredited Representative at Washington.

Report of Reference Committee on Report of Officers

The following resolutions were adopted:

RESOLVED, That all reports of officers, councils and standing committees of this Association, and all resolutions dealing with questions of policy of the Association, shall be filed with the Secretary of the Association sixty days in advance of the annual session of this House, published in the Bulletin, and mailed to every delegate at least thirty days before the annual session at which such resolutions or reports are to be considered.

RESOLVED, That the American Medical As-

sociation, through its accredited representatives and with the assistance of the accredited representatives of constituent organizations, whose cooperation is solicited, put forth every honorable effort to secure an amendment to the Veterans' Act of 1924, which will do away with federal free medical and surgical services and care for all veterans except those whose disabilities have been caused by war service for our country, or at least restrict free medical and surgical services and care to those veterans who are unable to pay for the same.

During the session of the House of Delegates we enjoyed the privilege of listening to several able addresses.

Dr. J. Basil Hall of England in a very pleasing way called attention to the trials of the English Physician in his relations with his government and the National Health Insurance Act. In 1912 the British Medical Association was poorly organized when suddenly they were called upon to face the dictates of Lloyd George. He frankly advised them that, in the event that they refused to submit to the provisions of the National Insurance Act, he had enough medical men up his sleeve to initiate State Service. They found that he had spoken the truth and because of their disorganization, they were obliged to acquiesce to his demands. After that, however, the British Medical Association pulled itself together and a few years later when the Minister of Health reduced fees, the Medical Fraternity refused, but agreed to arbitrate. The Minister of Health said he had no use for arbitration, whereupon the British Medical Association sent out resignation forms to its members and in ten days 96 per cent of the panel physicians of Great Britain resigned. The Minister of Health then sent word that arbitration was not such a bad thing after all.

I give this story to you in detail to show the necessity of a closer organization, not only scientifically, but economically. In these days when State Medicine, free or cheaply commercialized clinics, injudiciously applied charity, are making inroads on the purse of the physician, making living more difficult and postgraduate study often impossible, it is well that we observe the "handwriting on the wall."

The third and last meeting of the House of Delegates was convened before the appointed hour to listen to an address by Dr. Hubert Work of Colorado. Coloradans enjoyed with no small amount of pride, the respect paid to our distinguished colleague.

Following the address of Dr. Work, the House of Delegates proceeded to the election of officers. Those chosen were:

Dr. Wendell C. Phillips, New York, President.

Dr. Philip Marvel, New Jersey, Vice-President.

Dr. Olin West, Illinois, Secretary.

Dr. Austin A. Hayden, Illinois, Treasurer.

Dr. Frederick A. Warnshuis, Michigan, Speaker of the House of Delegates.

Dallas, Texas, was chosen as the meeting place for the 1926 Annual Session. Many expressed a desire to come to Denver instead and feeling that we otherwise would be derelict in our duty to our Society, we telegraphed our State Secretary for instructions as to the advisability of presenting the name of Denver. We were advised that inasmuch as no preparations had been made we should defer the invitation.

In the summary of the Proceedings of the

House of Delegates of the American Medical Association, I have only touched the high spots. The labors of the Board of Trustees and of the Councils of the American Medical Association are yearly becoming more arduous and it is of the greatest importance that the relationship existing between it and the constituent societies becomes more intimate.

I wish especially to call to your attention the resolution pertaining to periodic health examination institutions, and that we carry the message of the Judicial Council to the County Societies.

The resolutions covering the Veterans' Act of 1924 and other legislative activities should be brought to the attention of our Colorado members of Congress.

The time has arrived when we must consider means to provide for the employment of a full time State Secretary and Manager and I recommend this for your consideration most earnestly. Dr. F. B. Stephenson has given us much of his time and I sincerely hope that his services be spared to us, but in a larger capacity.

I wish to thank the Society and Dr. Meader, for whom I served as alternate, for the privilege of being your representative in the House of Delegates of the American Medical Association, during the last session.

B. B. BLOTZ.

The foregoing reports, with the exception of the report of the Treasurer, were referred to the Reference Committee on Reports of Officers, the Treasurer's report being referred to the Auditing Committee.

The report of the Committee on Publication was read by G. A. Moleen, and on motion, seconded and carried, referred to the Reference Committee on Reports of Committees. The report is as follows:

REPORT OF THE PUBLICATION COMMITTEE

Since the last annual session of the House of Delegates of the Colorado State Medical Society there have been published twelve issues of COLORADO MEDICINE, aggregating 776 pages of printed matter, including the covers. Of this space, 500 pages were devoted to reading matter and 276 pages to advertising. The reading matter included 81 original articles of which 26 were read at the last session of the society.

There were 28 pages devoted to Editorial Comment; Reports of Societies and News Items, 23 pages; Book Reviews, 15; while the Proceedings of the House of Delegates, Membership List, Colorado Authors, etc., occupied approximately 47 pages.

The editorial policy, choice of material, treatment of subject matter and arrangement is, or should be, familiar to the membership and represents the endeavors of the editor with the co-operation of the Committee.

The cost of publication of the twelve numbers was \$6,896.29, being an average of \$574.69 per issue.

The revenue accrued to the Journal is derived from two sources; namely, the per capita appropriation from the annual dues and the receipts from advertising, amounting to \$5,993.93. The per capita appropriation being \$2,076.00, and the receipts from advertising for eleven months (the September bills not having been paid) amount to \$3,917.93. In order to place the advertising account on a basis equal to that of the twelve month publication expense, an estimate of the probable return for the Septem-

ber advertising was drawn on the basis of the eleven months' collections which estimate would increase the amount of return from advertising by \$356.17, making a total for the 12 months, including the estimate, of \$4,274.00. This item for last year and covering a period of thirteen months amounted to \$3,894.68.

There were 62 books reviewed and deposited with the Library, which should be regarded as an asset.

RECAPITULATION

Receipts

Appropriation (\$2.00 per capita)	\$2,076.00	
Advertising, sale of copies, etc. (11 mo.) ..	3,917.93	
Estimate of September returns	356.17	
Deficit	546.19	
		\$6,896.29

Expenditures

Salary of Editor	\$ 300.00	
Salary of Editor's Clerk ..	600.00	
Printing and mailing of Colorado Medicine (12 issues)	4,860.57	
Commissions on advertising	894.87	
Incidentals, subscriptions to lay journals, stationery, etc.	240.85	
		\$6,896.29

The volume of advertising has not been increased as much as had been expected notwithstanding the effort expended to this end, but the Committee would recommend the continuance of the amount appropriated for clerical assistance for another year in order that a thorough trial may be made to increase this source of revenue.

In accordance with the action of this House of Delegates at the last session regarding the inclusion of the Wyoming State Medical Society proceedings in Colorado Medicine, an agreement has been reached on the basis of the terms outlined last year and a contract is in process of preparation which will become effective in January, 1926.

It is with regret that the Committee announces the retirement of Dr. Bluemel as editor. He has served the Society well and faithfully in maintaining the standard of its publication and especially in his efforts to increase the returns from advertising. He will be succeeded by Dr. C. F. Kemper, whom the Committee regards as a fortunate acquisition.

Respectfully submitted,

G. A. MOLEEN, Chairman,
T. E. CARMODY,
WM. H. CRISP.

C. N. Meader, as Chairman of the Committee on Medical Education, submitted the report of that Committee, which, on motion, seconded and carried, was referred to the Committee on Reports of Committees. The report is as follows:

REPORT OF COMMITTEE ON MEDICAL EDUCATION

In the national field of medical education the past year has seen a further increase in the total number of medical students enrolled, in the percentage of students enrolled in Class A medical schools, and in the total number of

medical graduates. The total enrollment in all schools has increased by 622; the percentage of students enrolled in Class A schools has reached 96.2 per cent and the number of graduates of all schools has increased by 865. The fear which has repeatedly been expressed that the limitation of the size of classes by good medical schools would keep out many properly qualified aspirants has been shown groundless by the fact that last fall Class A schools could have accommodated 1,500 more students than were actually enrolled. A survey by the Council on Medical Education further shows that by relatively inexpensive and simple readjustments about 5,000 additional medical students could be cared for by existing Class A medical schools. The alleged lack of adequate facilities is evidently due to the habit of students to apply at numerous schools simultaneously and also to the disproportionately large numbers who apply to the better known schools. The opening of the new University of Rochester School of Medicine, with admirable facilities, makes the number of medical schools in the country 80.

Graduate medical instruction during the past year has progressed steadily in the direction of better organization and a better understanding of what it should consist. The courses offered have in general become better arranged both in respect to content and progression.

In Colorado the opening of the new buildings of the Medical School and of the Colorado General and Colorado Psychopathic Hospitals has lent new interest to the subject of medical education and given new impetus to its development. Despite the "growing pains" not always dissociated from the development of the young, these institutions are beginning to find themselves and to demonstrate the service which they can render the State. The new laboratories are proving very satisfactorily adapted to their purpose and the close correlation between laboratory and clinical teaching now possible for the first time makes an admirable teaching arrangement which will be of still greater usefulness as the number of patients in the General Hospital increases. A new stimulus to original work both in laboratory and clinic is manifest and this phase of the activities of the School should become of increasing importance. With the somewhat further development and organization of undergraduate teaching accomplished it is expected that attention can be turned to the arrangement of graduate work which will be of use to the profession of the State. On July 1st Dr. Maurice H. Rees, who has made an admirable record as Head of the Department of Physiology and Pharmacology became Dean, succeeding Dr. Charles N. Meader, resigned. The School of Nursing has re-commenced its career with a satisfactory enrollment and it is gratifying that the pupils who have presented themselves have been of very excellent quality. It is evident that the close association of this School with that of Medicine will prove a source of strength to both. The Colorado General Hospital began receiving patients December 15, 1924 and the Psychopathic Hospital February 15, 1925. In both hospitals the physical facilities have proved well adapted to the work and the demand for their services has been as active as was anticipated during the first year of operation, the daily census of the General Hospital ranging from 50 to 75, while the Psychopathic Hospital has operated at capacity on several occasions and has had an average census of 60 to 70 patients. It is interesting

to note that the Psychopathic Hospital has already begun to develop a quickened interest among the student body in this rather neglected department of medical education and is taking part in the development of knowledge of mental hygiene in the State.

Respectfully submitted,

FRANK R. SPENCER,
JAMES J. WARING,
CHAS. N. MEADER.

Chairman.

Dr. Tracy Love submitted a report of the Committee on Social Medicine, as follows:

REPORT OF THE COMMITTEE ON SOCIAL MEDICINE

Your Committee has been previously instructed to cooperate with State, County and Municipal Boards in the preservation of public health and the prevention and arrest of communicable disease. The Committee has had no opportunity to do anything along that line. It feels that unless there is a request for something of that sort, it has no opportunity to work. It also feels that work of this sort is of such a peculiar and delicate nature that it is almost impossible to enter into this field.

The second purpose is to cooperate with all private agencies organized to combat the spread of disease and to improve the health of the people and to prolong human life.

The Committee in the persons of Dr. Wenk and Dr. Forbes have been working all the year in the Health Demonstration Clinics, and I call your particular attention to the demonstration which will be given here Thursday morning at 8:30. As a Committee, we have not been able to work, but as individuals representing the State Medical Society we have been able to correlate the two organizations. In addition to that, we are instructed that in that category are included the activities of the National and State Tuberculosis Associations, The American Association for the Control of Cancer, and the movement for the betterment of child hygiene and prevention of venereal diseases. Nothing of this sort has been accomplished. Third, the encroachment of State Medicine in the domain of private practice, and the definition of the limit to be set for it, are proper steps for consideration by the Committee. In Denver we find not a little concern in the past year or two with the question of the proper limits of activities in some clinics, and the proper limitations on what should be designated people suitable for charity. Many of you here have heard discussions in our County Medical Society on this subject, and you know it is a pretty difficult one, and so far we have not been able to arrive at any definite or proper conclusions. It seems, however, that the subject should be worked out much more fully than has been the case to date, but in order to do that, we must have a little closer cooperation with the men at large, with the men doing the clinical work. As long as we leave it to a lay body to designate people who shall receive services free of charge from the medical profession, we are absolutely at their mercy, and there is a good deal of question as to whether or not this designation is at the present time based on proper financial considerations. That particular subject is one which, as I have said before, we should take up much more in detail than has been the case; but unless we can get a lot of the men together, and unless we can get the men who are doing

clinical medicine in all these various institutions to agree on some definite line of action, and to refuse to act otherwise, we might as well give up our attempts.

On motion made, seconded and carried, the report was received and referred to the Committee on Reports of Committees.

A. J. Markley presented, on behalf of W. A. Jayne, the report of the Committee on Medical Literature, which report was referred to the Committee on Reports of Committees.

The report is as follows:

REPORT OF THE COMMITTEE ON MEDICAL LITERATURE

Your Committee on Medical Literature presents herewith a tabulated statement of additions to the Library for the past year; of the books purchased with the price paid for each; those received through Colorado Medicine for review; making a total of 110, which with the books reported last year give a total of 1,458 volumes in our Library.

The total purchases for the year exceeded the annual appropriation by \$3.93, which was paid from the Reserve Library Fund, which now amounts to \$417.77.

Each year the Library is used more and more freely by members throughout the State, both at the Library Rooms and by requests for loans. Last year 146 members consulted the Library in person, and 35 requested references and shipments of journals and books.

Your Committee requests the continuation of the annual appropriation of \$150.00 which enables the Library to buy books not contributed to Colorado Medicine for review and which assists materially in keeping the reference facilities of the Library thoroughly up to date. It is a matter for congratulation that our Library is so well equipped that we supply over 90 per cent of all calls made upon us.

Books Purchased from the Fund Allowed by the State Society, October 1924—October 1925

Billings-Forchheimer, Therapeutics, 6 vols. and index, 1924	\$ 42.30
Fuchs, Textbook of Ophthalmology, 1924	9.00
Spalteholz, Atlas of Human Anatomy, 3 vols., 1923	13.50
Pardee, Clinical Aspects of the Electrocardiogram, 1924	3.60
Sever, Orthopedic Surgery for Nurses, 1924	2.50
Maclean, Renal Diseases, 1924	2.25
Macleod, Physiology and Biochemistry in Modern Medicine, 1922	9.90
Joslin, Diabetic Manual, 1924	1.80
Hess, Scurvy, Past and Present, 1920	3.60
Keith, Menders of the Maimed, 1919	4.28
Collins and Mayou, Pathology and Bacteriology of the Eye, 1925	9.00
Lynch, American Red Cross Textbook on First Aid, 1925	.90
Corbus and O'Connor, Diathermy, 1925	4.50
Zinsser, Textbook of Bacteriology, 1924	6.75
Matthes, Differential Diagnosis, 1925	10.80
Hess, Infant Feeding, 1922	3.60
Spaeth, Ophthalmic Plastic Surgery, 1925	4.50
Turner, Diseases of the Nose, Throat, and Ear, 1925	4.95
Hays, Diseases of the Ear, Nose and Throat, 1925	9.00

Fulkerson, Gynecologic Urology, 1925....	5.40
Alexander, Surgery of Pulmonary Tuberculosis, 1925	4.05
Total cost of books	\$156.18
Credit on books returned	2.25
Total expenditure	\$153.93
Appropriation	150.00
Excess	\$ 3.93

Books Received for Review in Colorado Medicine, Oct. 1924—Oct. 1925

DeLee, Principles and Practice of Obstetrics, 1924.
 McNair, Rhus Dermatitis (Poison Ivy), 1923.
 DeSchweinitz, Diseases of the Eye, 1924.
 Abt, Pediatrics, vols. 3-7, 1924-1925.
 Lindsey, Medical Quotations from English Prose, 1924.
 Bickham, Operative Surgery, vols. 3-6 and index, 1924.
 Mayo Clinic, Collected Papers, vol. 15, 1923.
 Bandler, Medical Gynecology, 1924.
 Mallory and Wright, Pathological Technique, 1924.
 Jones, Hospital Library, 1923.
 Medical Clinics of North America, vol. 7, No. 6; vol. 8 No. 1-4, 1924-1925.
 Surgical Clinics of North America, vol. 4, No. 3-5, 1924.
 Bazin, Student's Guide to Operative Surgery, 1923.
 Thorek, Human Testis, 1924.
 Howe, Chemistry in Industry, 1924.
 Cohn, Normal Bones and Joints, 1924.
 Kerley, Practice of Pediatrics, 1924.
 Webster, Anesthesia for Nurses, 1924.
 Reynolds and Macomber, Fertility and Sterility in Human Marriages, 1924.
 Gurd, Infection, Immunity and Inflammation, 1924.
 Foxworthy, Life Insurance Examinations, 1924.
 Sutton, An African Holiday, 1924.
 Hirst, Manual of Obstetrics, 1924.
 Davis, Social Control of the Feeble-minded, 1923.
 Lorange, Medi-cult, 1924.
 Horsley, Operative Surgery, 1924.
 Draper, Human Constitution, 1924.
 Arey, Developmental Anatomy, 1924.
 MacCallum, Text-book of Pathology, 1924.
 Dercum, Physiology of Mind, 1925.
 Eyre, Psychology and Mental Hygiene, 1923.
 Wilson and Cochrane, Fractures and Dislocations, 1925.
 Medical Society of County of Kings, Practical Lectures, 1925.
 Ringer, Clinical Medicine for Nurses, 1924.
 Gleason, Manual of Diseases of Nose, Throat, and Ear, 1924.
 Feer, Diagnosis of Children's Diseases, 1925.
 Strecker & Ebaugh, Practical Clinical Psychiatry, 1925.
 Smith, From Infancy to Childhood, 1925.
 McFarland, Fighting Foes Too Small to See, 1924.
 A. M. A. Council on Pharmacy and Chemistry, Annual Reprint of Reports, 1924.
 Cabot, Differential Diagnosis, 1924.
 DeLee, Obstetrics for Nurses, 1924.
 Watkins & DeLee, Gynecology, Obstetrics, 1924.
 Wickham, Maternity Nursing in a Nutshell, 1924.

Bell, Feeding, Diet and the General Care of Children, 1924.

Webster, Science and Art of Anesthesia, 1924.
 Beck, Crippled Hand and Arm, 1925.
 Petty, Diabetes, 1st and 2nd ed., 1924, 1925.
 Hirsch, Compend of Genito-urinary Diseases, 1925.
 McCombs, Diseases of Children for Nurses, 1925.
 Vaquez, Diseases of the Heart, 1924.
 Crummer, Clinical Features of Heart Disease, 1925.
 International Conf. on Health Problems in Tropical America, Proceedings, 1924.
 Hertzler, Technic of Local Anesthesia, 1925.
 Williams, Personal Hygiene Applied, 1925.
 Laird, Applied Psychology for Nurses, 1923.
 Friedenwald and Ruhrah, Diet in Health and Disease, 1925.
 Norris & Landis, Diseases of the Chest, 1924.
 Da Costa, Modern Surgery, 1925.
 Boyd, Surgical Pathology, 1925.
 Moynihan, Gastric and Duodenal Ulcer, 1923.
 Wells, Compend of Gynecology, 1925.
 Dakin, Simplified Nursing, 1925.
 College of Physicians, Transactions, 1924.
 Duke, Allergy; Asthma, Hay Fever, Urticaria, 1925.
 Dorland, American Illustrated Medical Dictionary, 1925.

Summary

Volumes in the Library, October 1st, 1924	1,348
Volumes received through Colorado Medicine	81
Volumes purchased	29
Total number of volumes added during year	110
Total number of volumes in Library, October 1st, 1925	1,458

Respectfully submitted,

W. A. JAYNE, Chairman,
 GERALD B. WEBB,
 A. J. MARKLEY.

The report of the Committee on Hospitals was deferred.

The report of the Committee on Military Affairs and Careers of Members was deferred.

Dr. Meader then presented a brief report of the Committee to Confer with the American Medical Association on legislative affairs.

The report is as follows:

REPORT OF THE COMMITTEE TO CONFER WITH THE AMERICAN MEDICAL ASSOCIATION

Your Committee begs to report that it has not been called in conference by the American Medical Association nor have any matters requiring conference with that Association been referred to it by the Colorado State Medical Society. There are therefore no activities to report.

Respectfully submitted,

L. H. McKINNIE,
 PHILIP WORK,
 CHAS. N. MEADER,
 Chairman.

T. R. Love, on behalf of G. Heusinkveld, presented the report of the Membership Committee, which was referred to the Committee on Reports of Committees.

The report is as follows:

REPORT OF THE COMMITTEE ON MEMBERSHIP

Your Committee begs leave to report the following findings.

1. That there is in the east central portion of the state a locality containing some twenty-five physicians which might well be organized into a constituent society.

2. That there are many physicians in isolated communities for whom it is almost impossible to attend any regular monthly meetings.

3. There are some men about the state whose situation is of such a nature that membership in the Colorado State Medical Society is of little value to them. In this group belong retired physicians, teachers, lecturers in the Medical School and probably others.

4. There are several societies about the state which have during recent years done very little toward building up a healthy growth and are now in varying degrees of nonactivity.

5. In the jurisdiction are a varying number of physicians who are eligible to membership and for some reason or other are not members.

Recommendations:

1. That if possible a new society be organized with probably Byers as its central point.

2. That men from isolated sections mentioned above be made members at large of the Colorado State Medical Society.

3. That group 3 be taken care of as honorary or special members.

4. That proper measures be taken to stimulate activity in the societies in group 4 to bring about their rejuvenation. Suggestions for this might be that members of the faculty of the University Medical School or other suitable members be sent to their meetings to give talks or demonstrations. This committee feels that it is especially these societies and our members in the outlying communities who have little contact with other physicians at society meetings who need the stimulation derived from regular attendance and contact with their fellow physicians.

5. That rules governing the above procedures be drawn up.

6. That the secretaries of the various constituent societies be asked to submit lists of physicians eligible to membership and that these candidates be circularized with literature setting forth the advantages of membership in the Society and if possible be sent gratis for a given time our official journal.

The subject of "Education of the Laity" was then discussed by T. R. Love and by the President, Henry Sewall.

There being no further business, on motion made, seconded and carried, the House of Delegates adjourned to meet at eight o'clock a. m., Tuesday, September 29, 1925.

Second Meeting of the House of Delegates, September 29, 1925

The meeting was called to order by the President at 8:30 o'clock a. m., pursuant to adjournment.

The roll was called by the Secretary and the President announced a quorum present.

On motion, seconded and carried, the reading of the minutes of the previous meeting was dispensed with.

H. A. Smith presented the report of the

Reference Committee on Reports of Officers, which was accepted and placed on file.

The report is as follows:

REPORT OF REFERENCE COMMITTEE ON REPORTS OF OFFICERS

Verbal report of President approved; report of Secretary was highly satisfactory and committee commends him; report of delegates to American Medical Association proves that our State Society was adequately represented.

Respectfully submitted,

HARRY A. SMITH, Chairman,
A. H. EARLY,
J. M. SHIELDS.

W. H. Crisp reported progress on behalf of the Reference Committee on Reports of Committees.

Cuthbert Powell then presented a report of the Committee on Military Affairs, which is as follows:

REPORT OF COMMITTEE ON MILITARY AFFAIRS

The Committee on Military Affairs has had no occasion to engage in any particularly active work during the past year.

The Chairman has kept in touch and had several conferences with Captain E. W. Quinzel, M. C. Headquarters, 103d Division. An article prepared by Captain Quinzel, submitted to the Chairman, was approved and published in the August number of Colorado Medicine.

CUTHBERT POWELL, Chairman,
J. N. HALL,
CRUM EPLER.

This report, on motion seconded and carried, was referred to the Reference Committee on Reports of Committees.

W. A. Sedwick reported on behalf of the Investment Committee that that Committee had invested \$3,000.00 in gold bonds of the Denver Dry Goods Company.

The Secretary then read a communication from the American Medical Association relative to a model constitution and by-laws for State Medical Societies, and it was moved by L. W. Bortree that a special committee of three be appointed by the President to take up the matter as outlined by the Secretary. Motion seconded and carried.

Special Committee Appointed to Study Constitution and By-Laws

The President thereupon appointed C. N. Meader, Melville Black and W. H. Crisp.

Dr. Webb submitted a brief verbal report of the Committee on Scientific Work.

The report of the Committee on Appropriations was read by R. E. Holmes, and commented upon by the Secretary, by G. B. Webb, and by Dr. Holmes.

The report is as follows:

REPORT OF COMMITTEE ON APPROPRIATIONS

The Committee on Appropriations recommend that the following sums be set aside for the purpose hereinafter mentioned, which in accordance with the suggestions of the secretary have been classified under the following heads:

Appropriations 1925-1926

Annual Meeting	
Reporting	\$250.00
Badges and Incidentals	25.00
Programs and Postage	125.00

Visitors' Expense	200.00
Secretary's Office	
Secretary's Salary	\$200.00
Secretary's Clerk's Salary	240.00
Stationery and Incidentals	150.00
Colorado Medicine	
Editor's Salary	\$300.00
Editor's Clerk's Salary	600.00
Stationery, incidentals, printing and mailing, per member	2.00
Library	\$150.00

Committee on Careers of Members*

*Supplementary report makes appropriation for this Committee. See page——.

It was moved by H. A. Smith that the expenses of such visitors as have already been arranged for be paid out of the funds of the Society.

The motion being seconded by L. W. Bortree and put to a vote by the President, was carried.

The report of the Committee on Appropriations was further commented upon by the Secretary, and by Drs. Crisp and Sedwick.

Dr. L. H. Hill then submitted a brief verbal report of the Committee on Local Arrangements.

There being no further business, on motion made, seconded and carried, the House of Delegates adjourned to meet at eight o'clock a. m., Wednesday, September 30, 1925.

Third Meeting of the House of Delegates, September 30, 1925

The meeting was called to order at 8 o'clock a. m., by the President.

The Secretary called the roll, and the President announced a quorum present.

The reading of the minutes of the previous meeting was dispensed with.

C. D. Spivak submitted the report of the Committee on Careers of Members which was, on motion, referred to the Reference Committee on Reports of Committees. The report is as follows:

REPORT OF COMMITTEE ON CAREERS OF MEMBERS

The Committee on Careers of Members begs to present the following report:

The Committee was appointed at the annual meeting of the Colorado State Medical Society in 1923 and therefore has been in existence for two years. In September, 1924, the following circular letter and questionnaire were sent out to all the members of the Colorado State Medical Society:

Circular Letter

"At the last annual meeting of the Colorado State Medical Society, held at Glenwood Springs, a committee was appointed for the purpose of obtaining biographic data of the members, to be kept as a permanent record in the archives of the society. We beg to enclose a blank, which we ask you to kindly fill out and return in the enclosed addressed envelope at once.

"The committee hopes that you will co-operate with it in making the biographic data of the members as complete as possible.

"P. S.—The receipt of all biographic data will be acknowledged in 'Colorado Medicine'."

Questionnaire

Name in full.
Date of birth.
Place of birth.
Father's name.
Occupation.
Mother's maiden name.
First born or which child.
How many brothers.
Sisters.
Primary education.
Secondary education.
College.
Medical training.
Graduated.
Licensed.
Specialty.
Internship.
Post-graduate courses.
Serving on staff of.
Date married.
Children: Boys——; Girls——.
Wife's maiden name.
Practiced in.
Member of societies (philanthropic, religious, medical, scientific, military, political, etc.)
Held office in societies (give title and date).
Author of books, articles, etc. (give title, name of periodical, year, volume, page, if not already listed in Coloradoana).

In response to the letter some five hundred replies were received. A second circular letter was sent out in 1925 to those who had not responded before and later a personal letter was again sent out by the chairman of the committee to a number of those who did not respond. The result of all these efforts was that we have at the present time in our possession the biographic data of seven hundred and forty-seven members of the Colorado State Medical Society, alphabetically arranged, which represents 71.96 per cent of the organized medical profession in Colorado. As the whole procedure of answering the questionnaire would not take more than ten or fifteen minutes at the utmost, the fact that nearly forty per cent of the members did not respond after they had been circularized three times illustrates the prevailing trait of laziness among the people in general regarding the writing of letters.

The chairman of the committee will, at one of the sessions of this annual meeting, read a paper entitled "A bio-ethnological study of the organized medical profession of Colorado" in which he will give a summary and generalization of the data so far obtained. He is fully aware of the fact that his generalizations and conclusions, based on the data received from only one third of the entire medical profession of the state of Colorado, cannot be taken as truly representing a composite picture of the healing craft of the state of Colorado. It is only after the committee will have been enabled to obtain biographic data as near one hundred per cent as possible of all the medical men and women practicing in Colorado, that the statistics thus received will be amenable to scientific treatment.

The committee begs to make the following recommendations:

1. That the committee on Careers of Members be continued.
2. That an appropriation be made sufficient for the committee to carry on its work.
3. That the scope of the committee be extended to include the securing of biographic

data from all the members of the medical profession in Colorado, whether members of the Colorado State Medical Society or not. The committee has no doubt that such a liberal course towards non-members of the society will be appreciated by the profession in general and will serve as an incentive for joining medical societies.

4. In order to obviate the necessity for the committee to send out the questionnaire to new members joining the Colorado State Medical Society through the various county medical societies, and running a risk of obtaining such unsatisfactory results as the committee obtained in the past, the committee recommends that all the county societies be requested to have all applicants for membership sign these questionnaires, thereby securing one hundred per cent of biographic data of all future candidates.

Respectfully submitted,

C. D. SPIVAK, Chairman.

T. R. Love then discussed the question of further publicity, in regard to the lectures given in Denver last year, and moved the following: That a committee of three be appointed to assist and advise local societies throughout the State in putting on courses of popular lectures on medical subjects, the committee to have power to act, and the privilege of drawing on the treasury for traveling and incidental expenses associated with this work.

The motion was discussed by Dr. Crisp, who moved the following substitute: That we refer to the Committee on Public Policy and Legislation the question of using Dr. Withers' experience and willingness to cooperate in increasing the public knowledge on medical subjects throughout the State, with authority to act in any way that is thought advisable.

The substitute motion being regularly seconded and put before the house was discussed by Edward Jackson, C. S. Elder, and by Dr. Crisp.

Dr. Elder then moved that C. D. Spivak, not being a delegate, be granted the privilege of the floor.

The motion being seconded and put to a vote was carried.

The question was then further discussed by Dr. Spivak and Dr. Love.

The substitute motion being put to a vote, was carried.

T. R. Love then read a communication from the Boy Scouts of America, which, on motion of Edward Jackson, seconded and carried, was referred to the Committee on Miscellaneous Business, to report at the meeting of Thursday, October 1st.

W. H. Crisp as Chairman of the Reference Committee on Reports of Committees, then submitted a report.

The report is as follows:

REPORT OF REFERENCE COMMITTEE ON REPORTS OF COMMITTEES

We have considered the following reports:

(1) Report of the Committee on Public Policy and Legislation

We recommend that this report be approved, and that the Committee be requested to repeat its endeavors to improve the law of medical licensure along the lines indicated in the report. The House of Delegates might with advantage express itself in favor of reorganization of the State Board of Health, and against such a measure for abolition of the Board as was proposed in the recent meeting of the legislature.

The community at large, as well as the

medical profession, are deeply indebted to Dr. Edward Jackson for his efforts toward the enactment of the new law as to provision for the blind; and also to Dr. T. E. Carmody (as representing the American Medical Association in this state), Dr. Minnie C. T. Love, Dr. Tracy Love, and Dr. W. W. King, for securing the adoption of the "model lye bill."

(2) Report of the Publication Committee

We recommend that the report be approved. As regards the provision temporarily made for an additional appropriation of \$600.00 for salary of the editor's clerk, we suggest that, if at the end of another year the balance sheet for Colorado Medicine continues to show a considerable deficit, the question of renewing this appropriation be carefully reconsidered. It is worthy of mention, however, that the amount set aside as editor's salary is the same as in the early years of our official journal, although this sum has fortunately been materially increased by the larger amounts derived from commissions on advertising.

(3) Report of the Committee on Medical Education

In accepting this report, we feel that the House of Delegates should place on record its deep appreciation of the services which Dr. C. N. Meader has rendered to medical education in the state of Colorado, especially by his enthusiastic, indefatigable, and most efficient labors toward the creation of the new University Medical School and Colorado General Hospital.

(4) Report of the Committee on Medical Literature

We recommend that this report be approved, including the appropriation of \$150.00 for the Society's library.

(5) Report of the Committee to Confer with the American Medical Association

(6) Report of the Committee on Military Affairs

These reports call for no special action.

(7) Report of the Committee on Membership of the Colorado State Medical Society

The possibility suggested in recommendation No. 1 might be investigated by the Secretary. The recommendation to provide for membership in the State Society without attachment to constituent societies is complicated by the impossibility of adequate machinery for censorship except through the constituent societies. The numerical increase in membership of the State Society through inclusion of physicians practicing in scattered communities would be insignificant as compared with that to be derived from an energetic campaign among the very considerable percentage who are still outside the membership of our larger county societies, especially in Denver and Pueblo. We doubt whether it is practicable to take action on recommendation No. 3 of the Committee. The practicability of recommendations Nos. 2 and 5 might well be considered by the committee which has just been appointed to review the Society's constitution and by-laws in connection with the model forwarded to the Secretary by the American Medical Association. Recommendations Nos. 4 and 6 again emphasize the service which might be rendered to the Society by a full time officer, but it is doubtful whether an honorary secretary can find the necessary time for these purposes.

W. W. CROOK,
ALLEN HARRIS,
W. H. CRISP, Chairman.

On motion, seconded and carried, this report was received and adopted.

R. E. Holmes submitted the report of the Nominating Committee which was placed on the table until the meeting of Thursday, October 1st.

The report is as follows:

REPORT OF COMMITTEE ON NOMINATIONS

For President, George H. Curfman, Salida.

For First Vice President, Edward Delehanty, Denver.

For Second Vice President, W. E. Hays, Sterling.

For Third Vice President, E. H. Munro, Grand Junction.

For Fourth Vice President, L. E. Likes, Lamar.

Delegate to American Medical Association, L. H. McKinnie, Colorado Springs.

Alternate, W. T. Little, Canon City.

Councillor District 1, Ella A. Mead, Greeley.

Member Publication Committee, C. S. Bluemel, Denver.

Respectfully submitted,

R. G. SMITH,
L. W. BORTREE,
H. T. LOW,
R. E. HOLMES,
G. C. CARY.

The report from the special committee to examine a model constitution and by-laws for state societies was then received. The report is as follows:

REPORT OF SPECIAL COMMITTEE TO EXAMINE AND REPORT ON MODEL CONSTITUTION AND BY-LAWS FOR STATE SOCIETIES

Your Committee appointed to consider the revision of the constitution and by-laws prepared as a suggested model by the American Medical Association, begs to report that it has compared these with our own and finds that they are in the main in agreement. It notes several points in which it is possible that our own might properly be revised but believes that it should make no recommendation on the spur of the moment.

Your Committee therefore asks further time for proper consideration and conference with former officers of this Society.

CHAS. N. MEADER,
W. H. CRISP,
MELVILLE BLACK.

On motion of Dr. Edward Jackson, seconded and carried, the report of the Committee was accepted, and the Committee continued. The Secretary then asked the Committee to report their criticisms and evaluation to his office as early as possible, since the American Medical Association had asked for an early opinion from this Society. He explained that the model was not submitted for adoption, but for criticism as a tentative document.

REPORT OF AUDITING COMMITTEE

F. B. Stephenson then submitted the following report on behalf of G. W. Miel:

Dr. Miel left yesterday and left the report of his Committee here, and stated to me that it was in the package, but I do not find it. The effect of the report was, as he told me, that the committee approved the books of the Treasurer and found the accounts all right, that he personally had not seen the bond in the safe, but

he accepted Dr. Sedwick's statement that it was there.*

On motion of Edward Jackson, seconded and carried, the report of the Committee was accepted.

The Secretary then submitted a letter from the American Foundation, Inc., with reference to the World Court, and on motion of L. W. Bortree, regularly seconded, the communication was laid on the table.

R. E. Holmes stated that the Appropriations committee had already submitted a report before Dr. Spivak had submitted the report of his Committee. He further stated that no appropriations had been asked for up until that time, which was the reason no provision was made in the report of the Appropriations Committee for Dr. Spivak's Committee.

Dr. Stephenson: The Committee had an appropriation of \$100.00 to start with and the expense has been about \$83.00.

President Boyd: I think that can be attended to at our next meeting.

Dr. Holmes: Yes, we will make an amended report.

There being no further business, the meeting adjourned to meet on Thursday, October 1, 1925, at 8 o'clock a. m.

Fourth Meeting of the House of Delegates. October 1, 1925

The meeting was called to order by the President at 8 o'clock a. m.

The Secretary called the roll, and there being a quorum present, the business was proceeded with.

On motion seconded and carried, the reading of the minutes of the previous meeting was dispensed with.

C. O. Giese then submitted the report of the Committee on Hospitals, which, on motion seconded and carried, was approved.

The report is as follows:

REPORT OF THE COMMITTEE ON HOSPITALS

The Committee on Hospitals has had several meetings and has considered to the best of its ability the matters properly coming before it for consideration.

These matters are of sufficient importance in the opinion of the committee to warrant further consideration. The committee therefore presents this preliminary report with the suggestion that a further report be made by the new committee to be appointed at this meeting.

CHAS. O. GIESE, Chairman,
C. N. MEADER.

J. B. Crouch then submitted the report of the Committee on Miscellaneous Business, which was adopted. The report is as follows:

REPORT OF THE COMMITTEE ON MISCELLANEOUS BUSINESS

The Committee on Miscellaneous Business recommends that a committee be appointed by the President to confer with the Boy Scout officials to cooperate in formulating health regulations and hygienic standards for Boy Scout camps in Colorado.

J. B. CROUCH,
L. W. BORTREE.

*Auditing Committee's report appears on the book of the Treasurer, substantially as above.

G. P. Lingenfelter as Chairman of the Committee to Confer with the Veterans' Bureau, submitted a report which is as follows:

REPORT OF SPECIAL COMMITTEE TO CONFER WITH VETERANS' BUREAU

The Committee appointed by the President to take up the resolution which was passed by the House of Delegates with regard to the United States Veterans' Bureau, met with Doctor Dodge, Regional District Manager, on the 12th of November. After a rather lengthy discussion with Doctor Dodge with regard to the matter of prejudice of the Bureau towards Medical Education it is the opinion of the Committee that at the present time and for some years past no act, or acts could be construed as detrimental to Medical Education on the part of the Bureau. Furthermore the records in Doctor Dodge's office show that for the past three years no applicant has been awarded training in Chiropractic, and in order to attain such a training it is necessary for them to have a preliminary education which would meet the entrance requirements of a Class A Medical School. It is also the opinion of the Committee that many, if not all rumors which have passed by word of mouth to the effect that the Bureau is prejudiced to Medical Education are not based on facts, but in all probability have arisen from the confusion which resulted from lack of cooperation of the Federal Bodies interested in veterans' training before the formation of the United States Veterans' Bureau.

Furthermore that refusal of Medical Education in individual cases has been based on lack of entrance requirements, lack of time to complete course, for all work must be finished by June 30th, 1926, or physical inability to complete the work without injury to the applicant.

G. P. LINGENFELTER, Chairman,
E. R. MUGRAGE,
C. T. BURNETT.

On motion made, seconded and carried, the report was adopted.

President Boyd: The next order of business is the election of officers. The Secretary will read the nominations.

(The nominations as made by the Nominating Committee were read.)

President Boyd: Are there any other nominations from the floor? If not, a vote on the adoption of the report of the Committee on Nominations is in order.

Edward Jackson: I move that the Secretary cast the unanimous ballot of the House of Delegates for the nominees as proposed.

The motion being regularly seconded and put to a vote was carried, the results of the election being as follows:

ELECTION OF OFFICERS

President-Elect, George H. Curfman, Salida.
First Vice President, Edward Delehanty, Denver.

Second Vice President, W. E. Hays, Sterling.
Third Vice President, E. H. Munro, Grand Junction.

Fourth Vice President, L. E. Likes, Lamar.
Delegate to American Medical Association, L. H. McKinnie, Colorado Springs.

Alternate, W. T. Little, Canon City.
Councilor, District 1, Ella A. Mead, Greeley.
Member Publication Committee, C. S. Bluemel, Denver.

L. W. Bortree then read to the House the following resolution:

Resolution of Appreciation

BE IT RESOLVED by the House of Delegates of the Colorado State Medical Society in session assembled that the Society express its appreciation for the many favors shown it by the citizens of Colorado Springs during its annual convention in 1925; be it further

RESOLVED that a special vote of thanks be extended to the City Manager and City Commissioners of Colorado Springs for their co-operation in granting the Society the use of their Municipal Auditorium as a meeting place; to the Police Department of Colorado Springs for their service in guarding the exhibits during the night hours; to the Chamber of Commerce for its valuable assistance in preparing for the meeting; and to the Gazette Telegraph for the generous use of space in its columns in the reporting of the activities of the session, and especially for the accuracy with which technical subjects were reported. To the Committee on Scientific Work, the House of Delegates extends its most heartfelt thanks for the almost Herculean labor performed by that Committee which has resulted in the production of the finest exhibit in the history of the State Society, as well as an unusually interesting and informative program of papers. To the Committee on Local Arrangements, for the complete and pleasing program of activities for the members during the annual session, and to all the members who have cooperated in making the session a success, the thanks of the Society are extended. Be it further

RESOLVED that a copy of this resolution be spread upon the minutes of the Society and a further copy be furnished to the Press of Colorado Springs.

On motion of A. J. Markley, seconded by Edward Jackson, the resolution was put to a vote and adopted.

Secretary Stephenson: I had handed me yesterday an expression of thanks to the State Society and to Dr. E. D. Downing in particular, signed by the commercial exhibitors in the Auditorium, and by all the exhibitors in the scientific section who had an opportunity to sign, and they have asked that it be read before the House of Delegates and, if possible, incorporated in the minutes of our proceedings.

The communication is as follows:

RESOLUTION BY EXHIBITORS

To the House of Delegates of the Colorado State Medical Society:

We the undersigned, who have had the privilege of presenting scientific and commercial exhibits at the Fifty-Fifth annual session of the Colorado State Medical Society, desire to express our appreciation and gratitude to Dr. E. D. Downing for his uniform courtesy and untiring efforts and kindness to us in serving the many exhibitors and attending to their wants. The phenomenal success of the exhibits is largely due to his efforts.

We take this means of uttering our thanks and expressions of personal regard and esteem.
Signed*

L. W. Bortree: I move that the Society extend a vote of thanks to those gentlemen for their

*The long list of signatures is omitted because of space limitations.—F. B. S.

cooperation in making our meeting a success, and also for their words of appreciation of the efforts of one of our members.

The motion being regularly seconded and put to a vote was carried.

The President then addressed the House of Delegates with reference to the further use and disposition of the historical exhibits.

It was then moved by A. J. Markley that "a committee of three of the local members who have been so active in the getting together of these exhibits be appointed a committee to carry forward the work the President has suggested."

The motion was seconded and carried.

SUPPLEMENTARY REPORT OF COMMITTEE ON APPROPRIATIONS

R. E. Holmes: The Committee on Appropriations submitted a report yesterday. A report was made by the Chairman of the Committee on Careers of Members asking for an appropriation, and I would like on behalf of the Committee on Appropriations to make a recommendation that \$50.00 be allowed for the use of that Committee on Careers of Members.

H. T. Low: As another member of the Committee, I would like to endorse Dr. Holmes' motion.

On motion of L. W. Bortree, seconded by H. A. Smith, and put to a vote, the supplemental report was adopted.

There being no further business, the meeting adjourned sine die.

Total registration of members, 333; visitors, 16. Visitors present from Colorado, Pennsylvania, New York, Texas, Massachusetts, California, New Jersey, New Mexico, Louisiana and Kansas.

F. B. STEPHENSON, Secretary.

PROCEEDINGS OF THE SCIENTIFIC MEETINGS*

September 29—First Day

Morning Meeting

The meeting was called to order at 9 o'clock a. m. by the President, Henry Sewall.

President Sewall: A poet once wrote: "God bless the man who first invented sleep, So Sancho Panza said and so say I, But damned be he with curses loud and deep, Who first invented wakening."

In our Society we have had a delicious record for many years, but now there has come a man whose ship is outward, and while we do not curse him we feel as if he had woke us up, and we haven't fully rubbed our eyes clean. This Dr. Boyd had a fairy visit him when he was very young, and the fairy asked him what he wanted to do in life, and his answer was peculiar; he wanted to see the good in man. That has been the keynote of his life. He has a family which is to continue his work; he has put them on a higher plane than he himself started on. He was no sooner made President-elect of this organization than he busied himself to see what thing he could do that had not been done to interest people, the doctors, and to help the Society. He multiplied himself by fifty, and he

proved what we all thought, that we have been allowed to slumber, but that we are all ready to do the good things, the things that will help our neighbor if there comes a catalysis to set in action those potential things that can be done. And so I say he multiplied himself by fifty; and this panorama that we can view by going through the other room, has been the most remarkable addition to our series of many things that have been proposed. I am sorry to say it makes it hard for his successors, but it is a great step in advance.

It is not necessary for me to name him, but I must formally introduce to you your President, Dr. George A. Boyd, of Colorado Springs.

President Boyd: Ladies and Gentlemen of the Colorado State Medical Society: I have always held the truth and veracity of Dr. Sewall inviolate. I am afraid he has been reckless this morning. This I do know, that Dr. Sewall has this advantage over me: when you elected Dr. Sewall President of the Colorado State Medical Society, you honored yourselves; when you elected me, you took a long risk, and of course I am on trial.

This morning we are going to start our trial from the East. We have brought a wise man, Dr. George Draper, of New York, who will talk to you.

Dr. George Draper then addressed the Society on the subject, "The Practical Value to Medicine of Studies in Human Constitution."

The next number on the program was a paper entitled "Whitman's Method in the Treatment of Fractures of the Neck of the Femur," by S. Fosdick Jones, Denver.

The paper was discussed by G. B. Packard, P. O. Hanford, H. G. Wetherill, C. E. Tennant, and by Dr. Jones in closing.

The next paper was by Z. H. McClanahan, Colorado Springs, on "Fractures of the Pelvis."

This paper was discussed by William Senger, L. H. McKinnie, J. R. Espey, C. E. Tennant, S. F. Jones, G. H. Curfman and by Dr. McClanahan in closing.

The next paper was by Foster H. Cary, Denver, on "Progress in Obstetrics during the Last Twenty Years."

The paper was discussed by B. Tucker, T. M. Burns, C. B. Ingraham, G. M. Anderson of Cheyenne, Wyoming, and by Dr. Cary in closing.

The next paper was read by Clarence B. Ingraham, Denver, on "The Surgical Treatment of the Ovary."

The paper was discussed by P. Hillkowitz, Cuthbert Powell, T. D. Stoddard, C. E. Tennant, and by Dr. Ingraham in closing.

Afternoon Meeting

The meeting was called to order at 2 o'clock by President Boyd.

The Presidential Address was then delivered by Dr. George A. Boyd, the title of the address being "The Biologic View."*

President Boyd: Dr. Henry Sewall's address will be the next order of the afternoon—"Visualizing Medical History". I don't know of any other man on earth who can do it better.

The paper was then read by Dr. Sewall, and was discussed by O. M. Gilbert and G. A. Boyd.

The next paper was read by C. E. Tennant,

*Papers and discussions which formed a part of the proceedings of this session will appear in successive issues of Colorado Medicine.

*The address appears in full in the October, 1925, issue of Colorado Medicine.—Ed.

Denver, on "The Tuberculous Appendix; Its Local Reaction."

The paper was discussed by W. A. Kickland, J. N. Hall, Leonard Freeman, O. M. Gilbert, Philip Hillkowitz, G. A. Boyd, and by Dr. Tennant in closing.

The next paper, entitled "Rheumatism", was read by Carroll E. Edson, Denver.

The paper was discussed by W. H. Swan, W. F. Singer, and by Dr. Edson in closing.

The next paper was read by James R. Arneill, Denver, on "The Great Importance of the Thyroid in Relation to Certain Varieties of Heart Disease".

The paper was discussed by P. J. McHugh, H. G. Brainard, of Los Angeles, Leonard Freeman, Robert Levy, C. T. Burnett, G. M. Anderson of Cheyenne, Wyoming, H. A. Smith, and by Dr. Arneill in closing.

The next paper, entitled "Pyelitis," was read by William M. Spitzer, Denver.

The paper was discussed by George M. Myers, H. T. Low, T. M. Burns, O. S. Fowler, and by Dr. Spitzer in closing.

September 30—Second Day

Morning Meeting

The meeting was called to order at 9 o'clock a. m.

President Boyd: Gentlemen, this morning we are honored by a fraternal delegate from one of our sister states which has seen fit to send a personal representative to give us greetings, and it is with great pleasure that I introduce Dr. S. P. Vineyard, of Amarillo, Texas.

Dr. Vineyard: We Amarillans like to mention Amarillo. Of course, that means all of Texas.

Mr. President, Ladies and Gentlemen of the Colorado State Medical Society: It gives me a great deal of pleasure to come and give you greetings from the Texas State Medical Society. We are glad indeed to bring greetings. We like to sit at your feet and listen and learn. I sat in the House of Delegates this morning and caught two or three points that I think are worth a good deal to me. In regard to the question of publicity, it might be well for me to state, and I think it is not out of place for me to state at this time, what we are doing in regard to publicity. We have the same problem that you have, the problem of public lectures. That is not very attractive, so we have dropped that and we have gone into printer's ink, and we believe we are going to get better results. As to membership in the Society, we have in our Society an insurance feature. There is a certain amount of our dues which goes to the general, and a certain amount to the insurance funds; that is, a certain amount for insurance, a certain amount for the upkeep, and we find the insurance feature holds a goodly number of men. Out of our own town there are eight men who belong to the Potter County and the State Medical Society who would not belong were it not for the insurance feature. That is a detail which you can find out about, and it might be well for you to endorse.

Just one other thing, and that is, let me give you all an invitation to meet with us in Dallas next April. We will be glad to have each and every one of you there. I thank you.

President Boyd: We are not quite so far East

this morning, but we are still there, and Drs. Lukens and Moore of Philadelphia will now present their subject.

Dr. Robert M. Lukens then gave his illustrated address on "Bronchoscopy as an Aid in the Diagnosis and Treatment of Suppurative Diseases of the Lung". He was followed by William F. Moore, continuing the subject.

The lectures were discussed by G. A. Boyd, W. V. Mullin, T. E. Carmody, C. O. Giese, O. M. Gilbert, and by Dr. Lukens in closing.

The next paper, on "Colorado as a Research Center in Tuberculosis," was read by H. J. Corper, Denver.

The paper was discussed by C. O. Giese, and C. E. Harris.

The next paper read was by R. C. Whitman and Kathryn L. Chambers, on "A Method for Producing Defatted (or wax-free) Living Cultures of the Tubercle Bacillus, with a Preliminary Report on the Same as an Immunizing Agent".

The papers were discussed by H. J. Corper, Charles Boissevain, Felix Baum, and by Dr. Whitman in closing.

The next paper, "Treatment of Empyema in Children", by George B. Packard, Jr., Denver, was then read.

The paper was discussed by W. H. Woodbridge, J. B. Hartwell, J. W. Amessee and by Dr. Packard in closing.

Afternoon Meeting

The meeting was called to order at 2 o'clock p. m.

President Boyd: Every once in a while in the haze of human events some bold soul sets sail on the unknown sea of experimental effort. Today we have such a hero. He has made some discoveries and he has brought them back to us. Probably most of you have seen with the eye, but now you can hear the results of his efforts. I have very great pleasure in introducing Dr. A. N. Richards of the University of Pennsylvania.

Dr. Richards: Members of the Colorado State Medical Society: I hope I may be permitted at the beginning to express my very heartfelt thanks for the honor, which I appreciate so kindly, of an invitation to visit you this week. It is a distinction that I shall always think of with pride and humility. I have not come for the purpose of giving a lecture on "Kidney Function". I have come for the purpose of telling you of some experiments that have been going on in my laboratory with the collaboration of three able assistants for some years, and these experiments have had the effect of giving us who have been doing them, and possibly we hope some others, a clearer appreciation of how the kidney performs its characteristic work. It seems to me that it is particularly appropriate to begin what I have to say by showing a slide.

(Dr. Richards' address will appear later in Colorado Medicine.)

Dr. Boyd: I am going to have Dr. Heller read his paper, since it immediately concerns the function of the kidney. Dr. Heller's paper is on the subject of "The Value of Laboratory Tests of Kidney Function."

The paper by Frederick Heller, Pueblo, was then read and was discussed by W. M. Spitzer,

A. N. Richards, T. D. Stoddard, O. S. Fowler, and by Dr. Heller in closing.

The next paper was read by William Senger, Pueblo, on the subject, "Suphrenic Abscess."

The paper was discussed by J. N. Hall, W. W. Grant, R. H. Finney, T. D. Stoddard, and by Dr. Senger in closing.

President Boyd: The next paper of the afternoon is on "Thymic Enlargement—with Report of Cases," by Emanuel Friedman, Denver.

The paper was read and was discussed by F. B. Stephenson, E. L. Timmons, G. A. Boyd, G. M. Blickensderfer, and by Dr. Friedman in closing.

The next paper presented was by C. D. Spivak, Denver, on "The Organized Medical Profession of Colorado—a Bio-ethnological Study."

The paper was discussed by W. T. Little, O. M. Gilbert, and by Dr. Spivak in closing.

Dr. Stephenson: I would like to read by title the paper of Dr. Frank L. Dennis, which was left off the program through some error, and I ask that it be included in the records of the meeting: "Laryngological Carcinoma. Supplementary report of case operated on eighteen years ago", by Frank L. Dennis, Colorado Springs.

The meeting then adjourned to Thursday, October 1, 9 o'clock a. m.

October 1—Third Day

Morning Meeting

President Boyd: The next order of business is a reading of the minutes of the House of Delegates.

The Secretary then gave a verbal review of the proceedings of the House of Delegates.

Secretary Stephenson: In the absence of Dr. Boyd, I will call for the report of the Committee on Necrology. Dr. Little will present the report.

The report was read by Dr. Little and is as follows:

REPORT OF COMMITTEE ON NECROLOGY

It is fitting that we pause at this our last meeting to deliberate over and to pay tribute to those who have been taken from our midst in the past year.

In the short span of years that we inhabit this earth, we have but little time to accomplish great things. It is by quiet reflection at a time like this that a realization of this fact is brought to our attention. We, too, must follow the path over which our departed fellows have gone. Therefore, let us profit by our experience and give our thoughts and energy to the accomplishment of things that will make this a happier world for those who are to come.

We all shall miss the faces of those who have departed. There are some who have left places that cannot be filled; and we, as well as their families and the community at large, grieve their loss.

During the past year the following names have been stricken from our roster by the mysterious force that claims that intangible something called life:

Oliver Lyons, Denver, Colorado, April 30, 1925. Carcinoma. Born 1874, Ohio. Graduated Kentucky School of Medicine, 1898.

Licensed in Colorado 1903. Member Medical Society of the City and County of Denver.

W. Harlon Baker, Pueblo, Colorado. Apoplexy. Born 1855, Ohio. Graduated Gross Medical College, 1891. Licensed in Colorado, 1891. Member Pueblo County Medical Society.

J. C. Chipman, Sterling. November 15, 1924. Duodenal ulcer. Born 1860. Graduated Kentucky School of Medicine, 1882. Licensed in Colorado, 1892. Member Northeast Colorado Medical Society.

W. H. Wood, Greeley, Colorado. April 17, 1925. Influenza and pneumonia. Born, 1874. Graduated Albany Medical College, 1898. Licensed in Colorado, 1902. Member Weld County Medical Society.

E. J. Horan, Glenwood Springs, Colorado. December 29, 1925. Polypus in bowels. Born 1871, Vermont. Graduated University of Vermont, 1894. Licensed in Colorado, 1907. Member Garfield County Medical Society.

Alexander C. Magruder, Colorado Springs, Colorado. October 13, 1924. Appendicitis. Born 1867, Mississippi. Graduated Tulane University of Louisiana. Licensed in Colorado, 1900. Member El Paso County Medical Society.

D. P. Mayhew, Colorado Springs, Colorado. November 23, 1924. Pneumonia. Born Vermont, 1870. Graduated University of Michigan, 1896. Licensed in Colorado, 1900. Member El Paso County Medical Society.

William Henry Davis, Denver. May 27, 1925. Uremia. Born 1848, Indiana. Graduated Indiana Medical College, 1881. Licensed in Colorado, 1881. Member Medical Society of the City and County of Denver.

James A. Hart, Colorado Springs, Colorado. March 20, 1925. Cancer. Born 1849. Graduated Physicians and Surgeons College of New York, 1873. Licensed in Colorado, 1881. Member El Paso County Medical Society.

David Ernest Hoag, Pueblo, Colorado. September 20, 1925. Born in Missouri, 1882. Graduated Maryland School of Medicine, 1908. Licensed in Colorado, 1913. Member of Pueblo County Medical Society.

Henry L. Calkins, Leadville, Colorado. Born in Merton, Wisconsin, Nov. 7, 1869. Graduated Gross Medical College, 1901. Member of Lake County Medical Society.

WILLIAM C. FINNOFF, Chairman.

G. C. CARY,

W. T. LITTLE

On motion, seconded and carried, the report was received and placed on file.

President Boyd: As the next order of business, we are going to make a little change and have Dr. Jackson's paper first, on "Reaction of the Medical Profession to Blindness": Edward Jackson, Denver.

The paper was read and was discussed by John McFadzean, G. A. Boyd, W. H. Crisp, C. D. Spivak and by Dr. Jackson in closing.

President Boyd: The next order of the day will be an address by our guest, Harvey P. Towle, M.D., Boston.

The address was given by Dr. Towle and was discussed by A. J. Markley, O. M. Gilbert, T. D. Stoddard and by Dr. Towle in closing.

The next paper, carried over from the previous day, was on "Practical Medical and Surgical Aspects of Diseases of the Chest," by Charles J. Lowen, Denver, on "The Surgical Aspects" and I. D. Bronfin, Denver, on "The Medical Aspects."

The papers were discussed by J. B. Crouch, and by Drs. Bronfin and Lowen in closing.

The next paper, "The Significance of Certain Pathological Pupillary Changes," by Guy H. Hopkins, Pueblo, was then read by the author.

The paper was discussed by E. R. Neeper, E. M. Marbourg, J. A. Patterson, Melville Black, Edward Delehanty, J. J. Pattee and by Dr. Hopkins in closing.

The next paper, "Appendicitis; the Ochsner Method of Treatment," was then read by W. W. Grant, Denver.

The paper was discussed by P. O. Hanford, H. G. Wetherill, T. D. Stoddard, O. M. Gilbert, G. H. Curfman and by Dr. Grant in closing.

Afternoon Meeting

The first paper of the afternoon meeting was entitled "The Mosher-Toti Operation for Chronic Dacryocystitis," by C. E. Cooper, Denver.

The paper was discussed by Melville Black, J. A. Patterson, and by Dr. Cooper in closing.

The next paper was by Leonard Freeman, Denver, on the subject, "White Bile".

The paper was discussed by C. W. Maynard and by Dr. Freeman in closing.

President Boyd: The paper of Dr. C. W. Thompson will not be read, as Dr. Thompson, on account of an accident, will not be able to be here. His paper will be read by title.

Secretary Stephenson: Dr. Thompson's paper will go on the record of the proceedings of the Society under the title "The Psychiatric Viewpoint."

The next paper, on "Sporotrichosis," was read by A. J. Markley, Denver.

The paper was discussed by E. D. Downing, George P. Lingenfelter, Sanford Withers, C. W. Maynard, and by Dr. Markley in closing.

The next paper was "A Preliminary Report on the Treatment of Diphtheria Carriers by Roentgen Rays," by Sanford Withers, Denver, and Ethel D. Humphrys, Denver.

President Boyd: Before this discussion, I have a very important duty to perform. I will ask Dr. O. M. Gilbert and Dr. J. J. Pattee to escort to the stage our new president-elect, Dr. G. H. Curfman of Salida. Dr. Gilbert not being present, I will appoint Dr. C. O. Giese. I have great pleasure indeed in introducing to you your newly elected President, Dr. Curfman.

Dr. Curfman: Members of the Colorado State

Medical Society: I deem this a great honor. I hope that I shall be worthy of the trust, and I shall ask you all for your hearty cooperation in attempting at least to put on something about half as good as Dr. Boyd has done.

As you know, there are thrills that come into a person's life. I recall the first thrill of my life when I finished the first year in the primary school. The teacher had us read the last lesson in the book. It was something like this, "You have now reached the last lesson in the book, and, having been good children, you may go home and tell your parents to buy you a new second reader." A few years ago another thrill came into my life. It was after graduating from Medical School. I was called down in the pit of the amphitheatre one day in Chicago by the distinguished teacher of Clinical Surgery, Dr. John B. Murphy. He was accustomed to point out the first, second, third and fourth to come down, and we would go down quaking in our boots. A patient would be there, and he would propound the question, "What's the matter with the man?" The students would forget themselves a little bit, and he finally would step up and say, "The man can talk, ask him." But the thrill was when, instead of that usual summons, he pointed out eight in the Northwestern University Medical School at that time to come down to the pit, and much to our surprise it was to be congratulated for making good counts. But this today is the supreme thrill. I think this session has been the thrill of thrills. I noticed in today's Colorado Springs paper, how Dr. Richards had thrilled his audience with that wonderful exposition of the function of the kidney, and I think this session here has been one of thrills. My feeling about the Colorado State Medical Society, organized medicine, has undergone a considerable change since sitting in the House of Delegates a year ago. One begins to realize what organized medicine really means. Back of it all one gets the idea that it is not the American Medical Association, it is not the Colorado State Medical Society, but it is the local constituent societies that make what the President of the British Medical Society termed in his able address, "The American Medical Association, the greatest association of medicine in the world;" and I feel that in my humble way next year I would like to see that message carried to every constituent society in the State of Colorado, so that we may feel that the Society has made one step forward. I thank you.

The paper of Drs. Withers and Humphrys was then discussed by O. R. Gillett, F. B. Stephenson, and by Dr. Withers in closing.

The Fifty-fifth Annual Session of the Colorado State Medical Society was then formally closed.

F. B. STEPHENSON,
Secretary.

List of Members of the Colorado State Medical Society

December 1st, 1925

HONORARY MEMBERS

Richard C. Cabot, Boston, Mass.	Francis Ramaley, Boulder, Colo.
T. H. Hawkins, Plainfield, N. J.	John Ridlow, Chicago, Ill.
Livingston Farrand, Ithaca, N. Y.	William Robert Tyndale, Salt Lake City, Utah.
Lewis Linn McArthur, Chicago, Ill.	Victor C. Vaughan, Ann Arbor, Mich.
Chas. H. Mayo, Rochester, Minn.	L. B. Wilson, Rochester, Minn.
C. K. Mills, Philadelphia, Pa.	

ASSOCIATE MEMBERS

(Honorary Members of Constituent Societies)

Name	Address	Constituent Society
Major Earl H. Bruus	Aurora, Colo.	Denver
David I. Christopher	Colorado Springs, Colo.	El Paso
Abraham L. Fugard	Los Angeles, Calif.	Pueblo
Lt. Col. Paul C. Hutton	Aurora, Colo.	Denver
Alex. T. King	Milwaukee, Wis.	Pueblo
Hugh F. Lorimer	Ordway, Colo.	Pueblo
Luke MacLean	Pueblo, Colo.	Pueblo
Wm. H. Rader	Collbran, Colo.	Mesa
Cyrus F. Taylor	Pueblo, Colo.	Pueblo
Major Wm. H. Thearle	Aurora, Colo.	Denver

ACTIVE MEMBERS

Name.	Post Office.	Constituent Society.	Name.	Post Office.	Constituent Society.
Abrahams, H. E.	Trinidad	Las Animas	Bailey, B. M.	Mt. Harris	Northwestern
Adams, O. F.	Trinidad	Las Animas	Baird, Wm. J.	Boulder	Boulder
Adams, W. A.	Denver	Denver	Baker, Andrew J.	Florence	Fremont
Adkinson, R. C.	Florence	Fremont	Baker, Fred R.	Colorado Springs	El Paso
Albi, Michael	Trinidad	Las Animas	Baker, Madeleine M.	Denver	Denver
Albi, Rudolph	Denver	Denver	Baker, R. C.	Denver	Denver
Alcorn, F. A.	Haxtum	Northeast	*Baker, W. H.	Pueblo	Pueblo
Alford, Jos. Savage	Crested Butte	Denver	Baker, W. T. H.	Pueblo	Pueblo
Aldredge, H. H.	Englewood	Arapahoe	Bancroft, G. W.	Colorado Springs	El Paso
Allen, J. H.	Denver	Denver	Bane, Wm. C.	Denver	Denver
Allen, K. D. A.	Denver	Denver	Bane, W. M.	Denver	Denver
Allen, L. R.	Colorado Springs	El Paso	Barnard, Hamilton I	Denver	Denver
Allen, Robert S.	Denver	Denver	Barney, J. M.	Denver	Denver
Ames, Matthew H.	Denver	Denver	Barney, N. E.	Sterling	Northeast
Amesse, John W.	Denver	Denver	Bartz, L. E.	Windsor	Weld
Anderson, A.	Ault	Weld	Bassow, Solomon H.	Denver	Denver
Anderson, C. W.	Denver	Denver	Bast, Lee	Delta	Delta
Anderson, Geo. M.	Cheyenne, Wyo.	Denver	Bates, Mary E.	Denver	Denver
Anderson, T.	Denver	Denver	Baum, Felix	Denver	Denver
Andrew, C. F.	Longmont	Boulder	Baum, Harry L.	Denver	Denver
Andrew, John	Longmont	Boulder	Baum, William Wells	Denver	Denver
Andrews, Geo. D.	Walsenburg	Huerfano	Beachley, John V.	Stratton	Kit Carson
Apperson, Ed L.	Denver	Denver	Beacom, Dean Nolan	Denver	Denver
Argall, Albert J.	Denver	Denver	Beaghtler, Amos L.	Denver	Denver
Arndt, Rudolph W.	Denver	Denver	Beall, Kate W.	Denver	Denver
Arnell, James R.	Denver	Denver	Beall, Walter C.	Denver	Denver
Arnold, C. R.	Colorado Springs	El Paso	Beatty, J. T.	Denver	Denver
Ashbaugh, G. A.	Rocky Ford	Otero	Beck, L. H.	Manitou	El Paso
Ashbaugh, R. A.	Trinidad	Las Animas	Beck, N. C.	Denver	Denver
Ashley, G. H.	Denver	Denver	Bee, Archie	Canon City	Fremont
Atcheson, Geo.	Denver	Denver	Beebe, Nathan L.	Boulder	Boulder
Atkinson, T. E.	Greeley	Weld	Beers, Ida V.	Denver	Denver
Attwood, A. D.	Denver	Denver	Beggs, Wm. N.	Denver	Denver
Aust, T. H.	Cedar Edge	Delta	Bell, Claude Conley	Denver	Denver
Averill, H. W.	Evans	Weld	Belrose, N. W.	Long Beach, Calif.	Weld
Bacon, H. E.	Fort Collins	Larimer	Bendove, R. A.	Denver	Denver
Bagot, W. S.	Denver	Denver	Bennett, E. C.	Boulder	Boulder

Name.	Post Office.	Constituent Society.	Name.	Post Office.	Constituent Society.
Bergen, Frank L...	Burlington	Kit Carson	Calkins, Royal W...	Cortez	San Juan
Berlin, Wm. C. K...	Denver	Denver	Calonge, G. E...	La Junta	Otero
Beshoar, Ben...	Trinidad	Las Animas	Campbell, J...	Boulder	Boulder
Beyer, T. E...	Denver	Denver	Campbell, W. A...	Colorado Springs	El Paso
Bigelow, May T...	Denver	Denver	Campbell, W. A., Jr.	Colorado Springs	El Paso
Bingham, W. J...	Puebla Pue, Mexico	Denver	Canby, H. S...	Denver	Denver
Birkenmayer, W. C.	Denver	Denver	Carey, J. D...	Fort Collins	Larimer
Bishop, Frank D...	Denver	Denver	Carmichael, Paul W.	Sopris	Las Animas
Bixler, C. W...	Erie	Boulder	Carmody, T. E...	Denver	Denver
Black, H. A...	Pueblo	Pueblo	Carpenter, F. H...	Denver	Denver
Black, Melville...	Denver	Denver	Carson, L. R...	Glenwood Spgs.	Garfield
Blackman, A. A...	Colorado Springs	El Paso	Carson, P. C...	Englewood	Arapahoe
Blackmer, F. J...	Steamboat Sp.	Northwestern	Cary, F. H...	Denver	Denver
Blackwood, H. A...	Weldon	Morgan	Cary, G. C...	Grand Junction	Mesa
Blanchard, Winthrop	Denver	Denver	Casburn, F. E...	Lamar	Prowers
Blank, Henry...	Denver	Denver	Case, A. G...	Denver	Denver
Blickensderfer, G. M.	Denver	Denver	Cassell, O. M...	Burlington	Kit Carson
Block, Leon...	Denver	Denver	Catron, H. B...	Englewood	Arapahoe
Blosser, J. R...	Denver	Denver	Cattermole, Geo. H.	Boulder	Boulder
Blotz, B. B...	Rocky Ford	Otero	Catterson, A. D...	Denver	Denver
Blotz, B. F...	Rocky Ford	Otero	Cawley, B. M...	Trinidad	Las Animas
Blumel, C. S...	Denver	Denver	Cecchini, A. S...	Denver	Denver
Blumberg, A. M...	Denver	Denver	Chamberlain, R. S.	Denver	Denver
Bolton, L. C...	Cedar Edge	Delta	Champlin, H. H...	Denver	Denver
Bondurant, Alpheus J	Denver	Denver	Chandler, G. B...	Calhan	El Paso
Bonesteel, A. E...	Denver	Denver	Chapman, S. J...	Colorado Springs	El Paso
Bonney, S. G...	Denver	Denver	Chapman, W. S...	Walsenburg	Huerfano
Bordner, Alta E...	Pueblo	Pueblo	Charles, Robert L...	Denver	Denver
Boring, Harold B...	Denver	Denver	Chase, A. M...	Denver	Denver
Bortree, L. W...	Colorado Springs	El Paso	Chase, John S...	Denver	Denver
Bouslog, J. S...	Denver	Denver	Cheley, G. E...	Denver	Denver
Boyd, E. T...	Denver	Denver	Chesmore, H. P...	Delagua	El Paso
Boyd, Geo. A...	Colorado Springs	El Paso	Childs, S. B...	Denver	Denver
Braden, J. M...	Lafayette	Boulder	Chipman, J. C...	Sterling	Northeast
Brady, E. J...	Colorado Springs	El Paso	Chisholm, A. J...	Denver	Denver
Bramley, J. R...	Denver	Denver	Claggett, O. F...	Carbondale	Garfield
Brandenburg, H. P.	Denver	Denver	Clark, Ira J...	Denver	Denver
Brandon, E. Agnes...	Denver	Denver	Clarke, Edwin A...	Akron	Morgan
Breck, Merrick R...	La Junta	Otero	Claybaugh, W. W...	Grand Junction	Mesa
Brethouwer, C. G...	Montrose	Montrose	Cleland, W. S...	Delta	Delta
Brinton, Wm. Thos.	Denver	Denver	Cleveland, A. L...	Englewood	Arapahoe
Brobeck, Von Haller	Colorado Springs	El Paso	Clow, J. B...	Denver	Denver
Broeker, C. G...	Denver	Denver	Cochems, F. N...	Salida	Lake
Broman, O. F...	Greeley	Weld	Cohen, H. M...	Denver	Denver
Bronfin, Isadore D...	Sanatorium	Denver	Colby, H. E...	Stonington	Prowers
Brown, E. H...	Pueblo	Pueblo	Cole, J. H...	Oak Creek	Northwestern
Brown, H. C...	Denver	Denver	Coleman, O. E...	Denver	Denver
Brown, J. H...	Colorado Springs	El Paso	Collier, W. B...	Littleton	Arapahoe
Brown, L. G...	Colorado Springs	El Paso	Collins, E. W...	Denver	Denver
Brown, M. D...	Denver	Denver	Collison, H. M...	Sterling	Northeast
Brown, Thad C...	Fort Collins	Larimer	Conant, E. F...	Denver	Denver
Brown, Wm. S...	Tabernash	Denver	Condon, C. E...	Breckenridge	Lake
Brownell, W. F...	Fort Collins	Larimer	Connor, P. J...	Denver	Denver
Bryson, Margaret E.	Greeley	Weld	Conway, L. A...	Colorado Springs	El Paso
Buchtel, F. C...	Denver	Denver	Conyers, Chester A.	Denver	Denver
Buck, W. E...	Pueblo	Pueblo	Cook, L. C...	Golden	Denver
Bull, H. R...	Grand Junction	Mesa	Cook, Robert C...	Ft. Lyons	Denver
Bundsen, C. A...	Denver	Denver	Cooper, C. E...	Denver	Denver
Burdick, W. T...	Denver	Denver	Cooper, Henry Lewis	Denver	Denver
Burgin, Chas. H...	Delta	Delta	Cooper, Henry S...	Denver	Denver
Burgin, Jim...	Delta	Delta	Cooper, Horace S...	Denver	Denver
Burket, R. S...	Brook Forest	Denver	Coover, D. H...	Denver	Denver
Burkhard, Ed. D...	Pueblo	Pueblo	Copeland, W. C...	Hotchkiss	Delta
Burlingame, Robt. M.	Denver	Denver	Corbin, Emmett A...	Eaton	Weld
Burnett, A. L...	Durango	San Juan	Corlett, T. G...	Colorado Springs	El Paso
Burnett, C. T...	Denver	Denver	Cornell, H. M...	Dulce, N. M...	San Juan
Burnett, N. M...	Lamar	Prowers	Corper, H. J...	Denver	Denver
Burns, T. M...	Denver	Denver	Corr, Philip	Juneau, Wis.	Denver
Bush, C. E...	Denver	Denver	Corwin, R. W...	Pueblo	Pueblo
Bush, J. H...	Boulder	Boulder	Costigan, Daniel D.	Trinidad	Las Animas
Cable, George Lewis	Denver	Denver	Craghead, W. S...	Denver	Denver
Caldwell, C. N...	Pueblo	Pueblo	Craig, A. C...	Denver	Denver
Calhoun, H. O...	Denver	Denver	Craig, A. R...	Mesa	Mesa
*Calkins, H. A...	Leadville	Lake	Craig, James W...	Loveland	Larimer

Name.	Post Office.	Constituent Society.	Name.	Post Office.	Constituent Society.
Craig, Wm. B.	Denver	Denver	Elliott, C. H.	Denver	Denver
Craighead, J. W.	Pueblo	Pueblo	Elliott, J. T.	Denver	Denver
Cram, V. E.	Ft. Collins	Larimer	Ellis, A. G.	Bangkok, Siam	El Paso
Craney, J. P.	Denver	Denver	Elrick, Leroy	Denver	Denver
Creighton, B. B.	Manitou	El Paso	Emery, H. G.	Denver	Denver
Crews, Geo. B.	Denver	Denver	Engleson, C. J.	Brookings, S. D.	Denver
Crisp, J. D.	Denver	Denver	Enos, Clinton	Denver	Denver
Crisp, Wm. H.	Denver	Denver	Epler, Crum	Pueblo	Pueblo
Crook, W. W.	Glenwood Springs	Garfield	Erich, A. F.	Delta	Delta
Crosby, L. G.	Denver	Denver	Espey, J. G.	Trinidad	Las Animas
Crouch, J. B.	Colorado Springs	El Paso	Espey, J. R.	Trinidad	Las Animas
Crysler, W. C.	Littleton	Arapahoe	Evans, C. H.	Colorado Springs	El Paso
Cummings, G. D.	Florence	Fremont	Evans, F. J.	Denver	Denver
Cunningham, A. A.	Denver	Denver	Evans, T. J.	Colorado Springs	El Paso
Cunningham, T. D.	Denver	Denver	Ewing, G. F.	Grand Junction	Northeast
Curfman, G. H.	Salida	Chaffee	Eyerly, T. L.	Denver	Huerfano
Curtis, H. B.	Denver	Denver	Faber, Edwin G.	Denver	Denver
Dally, H. H.	Ludlow	Las Animas	Fantz, T. S.	Denver	Denver
Danahey, T. J.	Denver	Denver	Farrington, F. H.	Boulder	Boulder
Daniel, J. H.	Sterling	Northeast	Farrington, Paul R.	Boulder	Boulder
Danielson, R. W.	Hanover, N. M.	Denver	Farthing, C. H.	Meeker	Garfield
Darling, J. C.	Durango	San Juan	Faust, F. A.	Colorado Springs	El Paso
Darrow, C. H.	Denver	Denver	Feder, J. M.	Panama	Pueblo
Davenport, Robt. G.	Denver	Denver	Fee, L. W.	Westcliffe	Prowers
Davis, A. C.	Lamar	Prowers	Fenton, W. C.	Rocky Ford	Otero
Davis, J. B.	Denver	Denver	Fezer, Florence	Greeley	Weld
Davis, Jefferson W.	Denver	Denver	Filmer, B. A.	Denver	Denver
Davis, T. A.	Portland	Fremont	Finney, H. S.	Denver	Denver
Davlin, C. A.	Alamosa	San Luis Valley	Finney, R. H.	Pueblo	Pueblo
Day, A. L.	Craig	Northwestern	Finnoff, Wm. C.	Denver	Denver
Day, H. S.	Grand Junction	Mesa	Fischer, V. B.	Boulder	Boulder
Day, R. J.	Del Norte	San Luis Valley	Fisher, Carl D.	Denver	Denver
Day, W. A.	Delta	Delta	Fitzgerald, D. L.	Bristol	Prowers
Dean, E. F.	Denver	Denver	Fleming, Victor P.	Toronto, Canada	Denver
Dean, F. C.	Denver	Denver	Foley, John Wm.	Denver	Denver
DeBeque, W. A. E.	DeBeque	Denver	Fonda, J. W.	Longmont	Boulder
Delehanty, Ed.	Denver	Denver	Forbes, R. P.	Denver	Denver
DeMay, W. A.	Fort Collins	Larimer	Ford, G. R.	Trinidad	Las Animas
Denney, R. H.	Elbert	Denver	Ford, Mary E.	Denver	Denver
Dennis, F. L.	Colorado Springs	El Paso	Forney, F. A.	Woodman	El Paso
Dennis, W. S.	Denver	Denver	Forster, A. M.	Colorado Springs	El Paso
Dewey, E. B.	Denver	Denver	Foster, J. M.	Denver	Denver
Dibble, R. B.	Pueblo	Pueblo	Fowler, Harmon L.	Denver	Denver
Didrickson, F. G.	Montrose	Montrose	Fowler, Ora S.	Denver	Denver
Dietmeier, H. R.	Longmont	Boulder	Fox, M. R.	Sterling	Northeast
Dodson, A. E.	Akron	Morgan	Frank, Lorenz W.	Denver	Denver
Dooley, W. P.	Akron	Morgan	Frank, Robert T.	Denver	Denver
Dorset, B. C.	Denver	Denver	Frankle, B. B.	Denver	Denver
Douglass, A. L.	Denver	Denver	Fraser, M. Ethel V.	Denver	Denver
Downing, E. D.	Woodman	El Paso	Fraser, R. W.	Denver	Denver
Drea, Wm. Francis	Colorado Springs	El Paso	Freeland, H. J.	Denver	Denver
Driscoll, W. E.	Willow Creek	Northwest	Freeman, Leonard	Denver	Denver
Drisdale, W. E.	Coal Creek	Fremont	Freudenberger, H. C.	Colorado Springs	El Paso
Drown, L. M.	Denver	Denver	Freudenthal, A.	Trinidad	Las Animas
Dryer, Ernest	Colorado Springs	El Paso	Friedman, Emanuel	Denver	Denver
Dumm, B. I.	Denver	Denver	Fuqua, J. W.	Greeley	Weld
Dunkle, Frank	Gilman	Weld	Gaines, Joseph R.	Las Animas	Otero
Duncan, Floyd E.	Salida	Chaffee	Gale, M. Jean	Denver	Denver
Dunklee, Geo. K.	Denver	Denver	Gallaher, T. J.	Denver	Denver
Dunlop, Josephine N.	Pueblo	Pueblo	Gardiner, C. F.	Colorado Springs	El Paso
Dutton, F. G.	Julesburg	Northeast	Garvin, D. Edson	Golden	Denver
Dworak, Francis E.	Colorado Springs	El Paso	Garwood, H. G.	Denver	Denver
Dwyer, Paul K.	Alamosa	San Luis	Gasser, W. P.	Loveland	Larimer
Dyde, C. B.	Greeley	Weld	Gauss, Harry	Minneapolis, Minn.	Denver
Dymenberg, N.	Minturn	Denver	Gellen, Johanna	Denver	Denver
Eakins, C. F.	Brush	Morgan	Gengenbach, F. P.	Denver	Denver
Earley, A. H.	Denver	Denver	George, McLeod M.	Denver	Denver
Eastlake, Chesmore	Denver	Denver	Gibson, J. D.	Denver	Denver
Ebaugh, F. G.	Denver	Denver	Giese, C. O.	Colorado Springs	El Paso
Edson, C. E.	Denver	Denver	Gilbert, G. B.	Colorado Springs	El Paso
Edwards, G. M.	Denver	Denver	Gilbert, O. M.	Boulder	Boulder
Elder, C. S.	Denver	Denver	Gillaspie, Carbon	Boulder	Boulder
Elliot, H. R.	Denver	Denver	Gillett, O. R.	Colorado Springs	El Paso
Elliott, C. E.	Victor	Unattached	Gilmore, G. B.	Colorado Springs	El Paso

Name.	Post Office.	Constituent Society.	Name.	Post Office.	Constituent Society.
Gleason, R. L.	Fort Collins	Larimer	Hepp, G. Brinton	Denver	Denver
Goldhammer, Sam'l.	Denver	Denver	Hereford, J. H.	Colorado Springs	El Paso
Good, A. H.	Telluride	Montrose	Herriman, L. L.	Alamosa	San Luis Valley
Goodson, H. C.	Colorado Springs	El Paso	Hersom, R. G.	Denver	Denver
Gorsuch, John C.	Denver	Denver	Hess, Wm. L.	Denver	Denver
Gothard, J. W.	Avondale	Pueblo	Heusinkveld, Gerrit	Denver	Denver
Gotthelf, I. L.	Saguache	San Luis Valley	Heuston, H. H.	Boulder	Boulder
Graf, Carl H.	Boulder	Boulder	Hick, L. A.	Delta	Delta
Graham, Chas. A.	Denver	Denver	Hickey, Clinton G.	Denver	Denver
Graham, Donald A.	Denver	Denver	Hickey, H. L.	Denver	Denver
Graham, E. V.	Denver	Denver	Hickman, W. E.	Wiley	Prowers
Graham, R. F.	Greeley	Weld	Higgins, John W.	Denver	Denver
Grant, W. W.	Denver	Denver	Hill, E. C.	Denver	Denver
Grantham, O. A.	Littleton	Arapahoe	Hill, Lawrence H.	Colorado Springs	El Paso
Graves, C. H.	Canon City	Fremont	Hillkowitz, Philip	Denver	Denver
Graves, H. C.	Canon City	Fremont	Hills, W. K.	Colorado Springs	El Paso
Gray, Albert B.	Denver	Denver	Hillyer, W. E.	Boulder	Boulder
Green, Berryman	Denver	Denver	Hinshaw, J. D.	Canon City	Fremont
Green, H. A.	Boulder	Boulder	*Hoag, D. E.	Pueblo	Pueblo
Green, Louis	Denver	Denver	Holden, G. Walter	Denver	Denver
Greene, Lawrence W.	Denver	Denver	Holland, A. C.	Colorado Springs	El Paso
Greig, Wm.	Denver	Northeast	Holmes, R. E.	Canon City	Fremont
Greig, Wm. M.	Denver	Denver	Honstein, F. L.	La Veta	Huerfano
Groom, Robert	Boulder	Boulder	Honstein, C. E.	Littleton	Arapahoe
Grover, B. B.	Colorado Springs	El Paso	Hook, Merrit B.	Denver	Denver
Guthrie, Alice B.	Denver	Denver	Hopkins, G. A.	Glenwood Springs	Garfield
Guthrie, Ewing C.	Denver	Denver	Hopkins, Guy H.	Pueblo	Pueblo
Guthrie, J. F.	Vineland	Pueblo	Hopkins, John R.	Denver	Denver
Gutstein, H. H.	Denver	Denver	Hopkins, T. M.	Denver	Denver
Gydesen, C. S.	Colorado Springs	El Paso	Horan, E. J.	Glenwood Springs	Garfield
Gwinn, L. M.	Fairplay	Chaffee	Horton, D. J.	La Salle	Weld
Hadley, Edgar	Montrose	Montrose	Horton, T. C.	Tioga	Huerfano
Hageman, S. V.	Las Animas	Otero	Hotchkiss, Walter K.	Brighton	Denver
Haggart, John	Durango	San Juan	Hotopp, T. M. H.	Aspen	Garfield
Haggart, W. W.	Denver	Denver	Houf, W. H.	Iliff	Northeast
Hall, A. Z.	Eaton	Weld	Howard, C. J.	Rutland, Mass.	Denver
Hall, H. E.	La Junta	Otero	Howard, J. F.	Denver	Denver
Hall, Josiah N.	Denver	Denver	Howard, T. Leon	Denver	Denver
Halley, S. C.	Fort Collins	Larimer	Howell, J. D.	Berthoud	Larimer
Halley, W. H.	Denver	Denver	Howell, W. C.	Colorado Springs	El Paso
Halsted, F. S.	Denver	Denver	Hoyt, Ralph W.	Denver	Denver
Ham, Judson B.	Denver	Denver	Hudson, R.	Denver	Denver
Hammill, John P.	Denver	Denver	Huelsmann, L. C.	Colorado Springs	El Paso
Haney, J. R.	Colorado Springs	El Paso	Hughes, T. A.	Denver	Denver
Hanford, P. O.	Colorado Springs	El Paso	Hummel, E. P.	Sterling	Northeast
Hanson, F. P.	Gunnison	Fremont	Humphrey, Fred A.	Wellington	Larimer
Hanson, K. K.	Grand Junction	Mesa	Humphrys, Ethel D.	Hooper	Denver
Hardesty, W. B.	Berthoud	Larimer	Hunnicutt, W. P.	Larned, Kansas	Pueblo
Hargreaves, O. C.	Denver	Denver	Hunsaker, E. D.	Camp Crook, S. D.	Denver
Harmer, W. W.	Greeley	Weld	Hurley, Jas. R.	Antonito	San Luis
Harner, C. E.	Long Beach, Calif.	Denver	Hutchinson, Wm.	Pueblo	Pueblo
Harris, Allen H.	Denver	Denver	Hutton, V. A.	Florence	Fremont
Harris, C. E.	Woodman	El Paso	Inglis, John	Denver	Denver
Harrison, Fleet H.	Hugo	Denver	Ingraham, C. B.	Denver	Denver
Hart, J. F.	Julesburg	Northeast	Irwin, Robert S.	Denver	Denver
*Hart, Jas. A.	Colorado Springs	El Paso	Jackson, Edward	Denver	Denver
Hartwell, John B.	Colorado Springs	El Paso	Jackson, F. A.	Salida	Chaffee
Harvey, Edward Lee	Denver	Denver	Jaeger, Chas.	Denver	Denver
Harvey, Horace G.	Denver	Denver	Jaeger, J. R.	Denver	Denver
Harvey, H. G., Jr.	Denver	Denver	Jayne, W. A.	Denver	Denver
Haskell, E. E.	Windsor	Weld	Jeffery, J. E.	Ordway	Otero
Hassenplug, Wm. F.	Cripple Creek	Unattached	Jernigan, V. J.	Longmont	Boulder
Hayes, A. I.	Denver	Denver	John, Grant H.	Englewood	Arapahoe
Hayes, Harold M.	Sedgwick	Northeast	Johnson, E. E.	Cortez	San Juan
Hays, W. E.	Sterling	Northeast	Johnson, Harry A.	Ft. Morgan	Morgan
Hazelton, Wm. H.	Denver	Kit Carson	Johnson, Margaret	Boulder	Boulder
Hazlett, H. W.	Paonia	Delta	Johnson, Ross W.	Denver	Denver
Heacock, Charles H.	Pueblo	Pueblo	Johnston, R. S.	La Junta	Otero
Hegner, C. F.	Denver	Denver	Johnston, W. S.	Pueblo	Pueblo
Heimlick, A. F.	Grand Junction	Mesa	Jones, S. Fosdick	Denver	Denver
Heller, Frederick M.	Pueblo	Pueblo	Jones, Wm. W.	Denver	Denver
Henderson, H. B.	Denver	Denver	Joslyn, S. A.	Loveland	Larimer
Henkel, F. W. E.	Rifle	Garfield	Joy, Homer T.	Colorado Springs	El Paso
Hepler, A. H.	Newcastle	Garfield	Katzman, Maurice	Denver	Denver

Name.	Post Office.	Constituent Society.	Name.	Post Office.	Constituent Society.
Keir, F. E.....	La Junta	Otero	Lockwood, C. E.....	Olathe	Montrose
Keller, W. C.....	Genoa	Kit Carson	Lockwood, F. W.....	Fort Morgan	Morgan
Kellogg, J. H.....	Sterling	Northeast	Löf, A. J. O.....	Denver	Denver
Kelly, John P.....	Golden	Denver	Long, Margaret.....	Denver	Denver
Kelsey, Otis H.....	Denver	Denver	Loomis, P. A.....	Colorado Springs.....	El Paso
Kemble, Earl W....	Golden	Denver	Love, Minnie C. T....	Denver	Denver
Kemper, Constantine	Denver	Denver	Love, Tracy R.....	Denver	Denver
Kennedy, Arthur L..	Denver	Denver	Lovejoy, H. E.....	Rocky Ford	Otero
Kennedy, Geo. A....	Limon	Denver	Low, H. T.....	Pueblo	Pueblo
Kenney, F. W.....	Denver	Denver	Lowen, Chas. J.....	Denver	Denver
Kent, Geo. B.....	Denver	Denver	Lowther, R. D.....	Denver	Denver
Kent, Wallace C....	Denver	Denver	Lucas, Wilbur.....	Pueblo	Pueblo
Kerley, G. L.....	La Junta	Otero	Luqueer, F. A.....	Pueblo	Pueblo
Kern, B. F.....	Platteville	Weld	Lusby, A. C.....	Brush	Morgan
Kettlekamp, Fred O.	Colorado Springs.....	El Paso	Lyman, Chas. B....	Denver	Denver
Kickland, W. A....	Fort Collins	Larimer	Lynch, E. B.....	Leadville	Lake
Killough, H. B.....	Denver	Pueblo	*Lyons, Oliver	Denver	Denver
King, W. W.....	Denver	Denver	Macomber, Geo. N...	Denver	Denver
Kinney, J. E.....	Denver	Denver	Macomber, H. G....	Denver	Denver
Kinsella, T. J.....	Colorado Springs.....	El Paso	Madden, J. H.....	Colorado Springs.....	El Paso
Kinzie, J. W.....	Haxtum	Northeast	Madler, N. A.....	Greeley	Weld
Kleiner, Moses.....	Denver	Denver	Mahoney, J. J.....	Colorado Springs.....	El Paso
Knisely, A. L.....	Monte Vista..	San Luis Valley	Maier, Frank J.....	Denver	Denver
Knoch, N. H.....	Denver	Denver	Male, J. T.....	Yampa	Northwestern
Knott, Isaiah.....	Montrose	Montrose	Mann, Hiram B....	Denver	Denver
Knowles, E. W.....	Greeley	Weld	Manns, Rudolph....	Denver	Denver
Knowles, T. R.....	Colorado Springs.....	El Paso	Marbourg, E. M....	Colorado Springs.....	El Paso
Knuckey, C. T.....	Lamar	Prowers	Markel, C.....	Edgewater	Denver
Kracow, A. R.....	Denver	Denver	Markley, Arthur J..	Denver	Denver
Kretschmer, Otto S.	Denver	Denver	Marmaduke, C. V...	Pueblo	Pueblo
Krohn, M. J.....	Denver	Denver	Martin, W. F.....	Colorado Springs.....	El Paso
Kruse, May B.....	Denver	Denver	Mathews, P. G.....	Walsenburg	Huerfano
Kunitomo, N.....	Denver	Denver	Matlack, J. A.....	Longmont	Boulder
Laff, Herman.....	Denver	Denver	Matthews, B. H....	Denver	Denver
Lamberton, Robt. F.	Denver	Denver	Matson, Wm. F....	Denver	Denver
Lamme, J. M.....	Walsenburg	Huerfano	Maul, H. G.....	Denver	Denver
Lamme, S. J.....	Walsenburg	Huerfano	Maul, R. F.....	Denver	Denver
LaMoire, H. A.....	Pueblo	Pueblo	Maxwell, J. G.....	Canon City	Fremont
Lane, Harold C....	Denver	Denver	Maynard, C. W....	Pueblo	Pueblo
Langdon, E. E.....	Victor	Denver	Maynard, Donald E.	Durango	San Juan
Langdon, G. W....	Oak Creek	Northwestern	McArthur, A. M....	Delta	Delta
Lannon, A. R.....	Denver	Denver	McBride, W. L.....	Seibert	Kit Carson
Larimer, G. W.....	Salida	Chaffee	McCartin, E. L....	Colorado Springs.....	El Paso
Larson, J. H.....	Wray	Mesa	McCartney, F. M....	Denver	Denver
LaRue, C. L.....	Boulder	Boulder	McCarty, D. W....	Berthoud	Larimer
Lassen, Fritz.....	Pueblo	Pueblo	McCaw, J. A.....	Denver	Denver
Latta, C. J.....	Sterling	Northeast	McClanahan, A. C...	Delta	Delta
Lawson, J. A.....	Rocky Ford	Otero	McCianahan, R. K...	Colorado Springs.....	El Paso
Leavitt, Byron C...	Millbrook, Mass.....	Denver	McClanahan, Z. H...	Colorado Springs.....	El Paso
Lee, G. H.....	Denver	Denver	McCleary, E. O....	Ordway	Otero
Lee, H. C.....	Trinidad.....	Las Animas	McClellan, W. E...	Trinidad	Las Animas
Lee, L. W.....	La Veta	Huerfano	McClure, C. O.....	Trinidad.....	Las Animas
Lefurgey, H. C.....	Dolores	San Juan	McConnell, J. C...	Somerset	Delta
Lehan, J. W.....	Greeley	Weld	McConnell, J. F....	Colorado Springs.....	El Paso
LeRossignol, W. J..	Denver	Denver	McCorkle, H. B....	Colorado Springs.....	El Paso
Levin, O. S.....	Denver	Denver	McCormick, Roscoe	Fleming	Northeast
Levy, Maurice.....	Denver	Denver	McDonald, F. J....	Leadville	Lake
Levy, Robt.....	Denver	Denver	McDonald, R. J....	Leadville	Lake
Lewis, G. B.....	Denver	Denver	McDonald, R. J., Jr.	West Portal	Denver
Lewis, Robert.....	Denver	Denver	McDonnell, J. J....	Pueblo	Pueblo
Lewis, W. B.....	Denver	Denver	McDonough, J. P...	Gunnison	Chaffee
Lewis, W. H.....	Hotchkiss	Delta	McFadden, J. G....	Loveland	Larimer
Leyda, James H....	Denver	Denver	McGill, Earl D....	Edgewater	Denver
Leyda, Paul.....	Frederick	Boulder	McGraw, H. R.....	Denver	Denver
Libby, Geo. F.....	Denver	Denver	McGugan, A.....	Denver	Denver
Liddle, E. B.....	Colorado Springs.....	El Paso	McHugh, P. J.....	Fort Collins	Larimer
Likes, L. E.....	Lamar	Prowers	McIntyre, T. A....	Colorado Springs.....	El Paso
Lincoln, C. L., Jr...	Denver	Denver	McKay, J. H.....	Denver	Denver
Lingenfelter, G. P...	Denver	Denver	McKeen, H. R.....	Denver	Denver
Lingenfelter, H. A...	Durango	San Juan	McKelvey, S. R....	Denver	Denver
Lipscomb, J. M....	Denver	Denver	McKeown, E. E....	Denver	Denver
Little, Lowell.....	Hayden	Northwestern	McKibben, S.....	Creede	San Luis Valley
Little, W. T.....	Canon City	Fremont	McKinnie, L. H....	Colorado Springs.....	El Paso
Lockard, Lorenzo B.	Denver	Denver	McLauthlin, C. A...	Denver	Denver

Name.	Post Office.	Constituent Society.	Name.	Post Office.	Constituent Society.
McLauthlin, H. W.	Denver	Denver	Norton, D. O.	Fort Collins	Larimer
McNaught, F. H.	Denver	Denver	Nossaman, A. J.	Pagosa Springs	San Juan
McNeill, F. A.	Dove Creek	San Juan	O'Connor, J. W.	Denver	Denver
Mead, Ella A.	Greeley	Weld	Ogilbee, H. M.	Manitou	El Paso
Meade, E. E.	Denver	Denver	Ogle, W. M.	Forbes	Las Animas
Meador, Chas. N.	Denver	Denver	Ohmart, W. A.	Denver	Denver
Means, F. M.	Holyoke	Northeast	Olcott, Chas. T.	Indian Wells, Ariz.	El Paso
Menkel, H. C.	Simla, India	Denver	Olmsted, G. K.	Denver	Denver
Menser, Bert.	Denver	Denver	Olson, D. G.	Keota	Weld
Merriman, Amherst.	Pueblo	Pueblo	Oppenheim, S. M.	Denver	Denver
Metcalf, A. W.	Denver	Denver	O'Rourke, D. H.	Denver	Denver
Metz, C. W.	Denver	Denver	Orr, Jas. S.	Fruita	Mesa
Miel, Geo. W.	Denver	Denver	Orsborn, G. E.	Denver	Denver
Mierley, Ira C.	Denver	Denver	Owens, R. L.	Colorado Springs	El Paso
Miles, Amy B.	Boulder	Boulder	Packard, Geo. B.	Denver	Denver
Miles, M. E.	Boulder	Boulder	Packard, Geo. B., Jr.	Denver	Denver
Miller, A. E.	Delta	Delta	Packard, Robt. G.	Denver	Denver
Miller, Eli A.	Denver	Denver	Palmer, F. E.	Sterling	Northeast
Miller, L. A.	Colorado Springs	El Paso	Palmer, W. A.	Castle Rock	Denver
Miller, L. I.	Denver	Denver	Parker, O. T.	Salida	Chaffee
Miller, R. B.	Louisville	Boulder	Parker, Thadd.	Morley	San Luis Valley
Miller, Samuel W.	Denver	Denver	Pate, C. E.	Denver	Denver
Minner, M. G.	Denver	Denver	Pattee, J. J.	Pueblo	Pueblo
Minnig, Arnold.	Denver	Denver	Patterson, J. A.	Colorado Springs	El Paso
Mitchell, D. M.	La Salle	Weld	Patterson, R. F.	Springfield	Prowers
Mitchell, L. R.	Eads	Prowers	Patterson, W. O.	Pueblo	Pueblo
Mitchell, Wm. C.	Denver	Denver	Peavy, I. L.	Silverton	San Juan
Mix, Walter S.	Denver	Denver	Peck, G. S.	Denver	Denver
Mogan, W. E.	Denver	Denver	Pecony, Jos. W.	Denver	Denver
Moleen, G. A.	Denver	Denver	Peirce, F. J.	Pueblo	Pueblo
Mouaghan, D. G.	Denver	Denver	Perkins, C. C.	Denver	Denver
Monismith, A. F.	Fort Lupton	Weld	Perkins, Earl James.	Marble	Denver
Monson, G. L.	Denver	Denver	Perkins, I. B.	Denver	Denver
Mooney, W. E.	Haxtum	Northeast	Perrott, E. W., Jr.	Denver	Denver
Moore, A. M.	Denver	Denver	Pershing, C. L.	Denver	Denver
Moore, F. R.	Florence	Fremont	Pershing, H. T.	Denver	Denver
Moore, G. C.	Littleton	Arapahoe	Pestal, Joseph.	Lamar	Prowers
Moore, J. W.	Denver	Denver	Peterson, Edgar A.	Denver	Denver
Morehouse, J. A.	Sterling	Northeast	Peterson, E. H.	Grand Junction	Mesa
Morgan, J. W.	Denver	Denver	Phillips, S. G.	Denver	Denver
Morian, C. H.	Denver	Denver	Philpott, J. A.	Denver	Denver
Morning, J. F.	Denver	Denver	Pipkin, G. P.	Pueblo	Pueblo
Morrill, E. L.	Fort Collins	Larimer	Pitney, Orville.	Cheraw	Otero
Morrish, R. W.	Fort Collins	Larimer	Place, O. G.	Boulder	Boulder
Morrison, C. S.	Colorado Springs	El Paso	Plumb, Carl W.	Grand Junction	Mesa
Morrison, R. G.	Denver	Denver	Poley, C. W.	Boulder	Boulder
Morse, C. E.	La Junta	Otero	Pollard, J. W.	Denver	Denver
Morrow, E. L.	Oak Creek	Northwestern	Porter, R. B.	Glenwood Springs	Garfield
Mortimer, J. L.	Denver	Denver	Porter, V. W.	Lafayette	Boulder
Moses, H. C.	Colorado Springs	El Paso	Pothuisje, P. J.	Denver	Denver
Mudd, W. G.	Long Beach, Cal.	Denver	Powell, Cuthbert.	Denver	Denver
Mngrade, E. R.	Denver	Denver	Pratt, Elsie S.	Denver	Denver
Mullin, W. V.	Colorado Springs	El Paso	Prewitt, Francis E.	Denver	Denver
Mumey, Nolie	Denver	Denver	Prey, Duval.	Denver	Denver
Munro, E. H.	Grand Junction	Mesa	Price, Evelyn B.	Pueblo	Pueblo
Myers, G. M.	Pueblo	Pueblo	Price, R. C.	Denver	Denver
Myers, J. T.	Hotchkiss	Delta	Prien, Otto Louis.	Denver	Denver
Myers, S. Scott.	Dnrange	San Juan	Printz, Morris.	Denver	Denver
Naugle, J. E.	Sterling	Northeast	Prinzing, J. F.	Denver	Denver
Needles, J. W.	Pueblo	Pueblo	Purcell, James W.	Denver	Denver
Neeper, E. R.	Colorado Springs	El Paso	Queal, E. B.	Boulder	Boulder
Neff, O. S.	Flagler	Kit Carson	Ramsey, R. T.	Denver	Denver
Nelson, Eli	Sanatorium	Denver	Ranson, J. R.	Denver	Denver
Nelson, G. E.	Windsor	Weld	Raymond, E. I.	Wellington	Larimer
Ness, R. J.	Denver	Denver	Reed, C. W.	Grand Junction	Mesa
Newburn, W. L.	Trinidad	Las Animas	Reed, Marvin W.	Denver	Denver
Newcomer, Elizabeth	Denver	Denver	Reed, W. K.	Boulder	Boulder
Newcomer, N. B.	Denver	Denver	Reed, W. W.	Boulder	Boulder
Newell, G. E.	Buena Vista	Chaffee	Reese, Maurice	Denver	Denver
Newland, C. A.	Springfield	Prowers	Reid, Henry S.	Estes Park	Denver
Newsom, H. G.	Denver	Denver	Reilly, Joseph John.	Denver	Denver
Nicoletti, Frank.	Pueblo	Pueblo	Replogle, B. F.	Fort Collins	Larimer
Nifong, J. D.	Denver	Denver	Rice, Geo. Ernest.	Pueblo	Pueblo
Noonan, G. M.	Walsenburg	Huerfano	Rich, W. F.	Pueblo	Pueblo

Name.	Post Office.	Constituent Society.	Name.	Post Office.	Constituent Society.
Richards, D. F.	Denver	Denver	Smiley, A. L.	Pueblo	Pueblo
Richie, L. T.	Trinidad	Las Animas	Smith, A. E.	Gilman	Denver
Richmond, C. E.	Colorado Springs	El Paso	Smith, A. S.	Colorado Springs	El Paso
Richmond, G. E.	Denver	Denver	Smith, C. A.	Monte Vista	San Luis Valley
Rilance, Chas. D.	Denver	Denver	Smith, Chas. D.	Kline	San Juan
Ringle, C. A.	Greeley	Weld	Smith, Fisher Elmus	Denver	Denver
Ritterspach, F. J.	Brighton	Denver	Smith, H. A.	Delta	Delta
Robb, F. C.	Denver	Denver	Smith, R. G.	Denver	Denver
Robb, Wm. J.	Denver	Denver	Smith, W. A.	Colorado Springs	El Paso
Robe, R. C.	Pueblo	Pueblo	Snair, W. L.	Louisville	Boulder
Roberts, J. O.	Denver	Denver	Snedec, J. F.	Pueblo	Pueblo
Roberts, W.	Denver	Denver	Snyder, H. W.	Denver	Denver
Roberts, Wm. J.	Denver	Denver	Sorensen, George	La Junta	Otero
Robertson, E. H.	Boulder	Boulder	Spangleberger, M. A.	Denver	Denver
Robbins, A. W.	Durango	San Juan	Spaulding, W. F.	Greeley	Weld
Robinovitch, Louise G	Golden	Denver	Spearman, F. S.	Phoenix, Ariz.	Garfield
Robinson, E. F.	Denver	Denver	Speck, Richard T.	McPhee	Denver
Robinson, G. W.	Trinidad	Las Animas	Spencer, F. R.	Boulder	Boulder
Robinson, Jas. M.	Denver	Denver	Spicer, Chas. R.	Denver	Denver
Roe, John F.	Denver	Denver	Spicer, O. W.	Colorado Springs	El Paso
Roehrig, Karl F.	Denver	Denver	Spitzer, W. M.	Denver	Denver
Rogers, F. E.	Denver	Denver	Spivak, C. D.	Denver	Denver
Root, M. R.	Denver	Denver	Sprecher, Geo. W.	Brush	Northeast
Rossiter, H. J.	Golden	Arapahoe	Stains, Minnie E.	Colorado Springs	El Paso
Rothrock, F. B.	Colorado Springs	El Paso	Stanley, A. F.	Rouse	Huerfano
Rothwell, P. D.	Denver	Denver	Staunton, A. G.	Denver	Denver
Ruegnitz, L. H.	Denver	Denver	Stein, H. B.	Denver	Denver
Rupert, L. E.	Florence	Fremont	Steinberg, B. M.	Denver	Denver
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Ryan, J. G.	Denver	Denver	Stephenson, F. B.	Denver	Denver
Ryder, Charles	Colorado Springs	El Paso	Steurer, Justin	Denver	Denver
Sadler, E. L.	Fort Collins	Larimer	Stevens, F. T.	Colorado Springs	El Paso
Salisbury, E. I.	Chicago, Ill.	Denver	Stevens, H. L.	Denver	Denver
Sams, Louis V.	Denver	Denver	Stewart, J. G.	Grover	Weld
Savage, Joseph	Denver	Denver	Stiles, Geo. Whitfield	Denver	Denver
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Schroeder, R. H.	Denver	Denver	Stubbs, A. L.	La Junta	Otero
Schultz, H. H.	Woodman	El Paso	Struthers, J. E.	Denver	Denver
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Scott, John Terrill	Denver	Denver	Stuver, E.	Fort Collins	Larimer
Sears, Thad P.	Denver	Denver	Stuver, H. W.	Denver	Denver
Sedwick, Wm. A.	Denver	Denver	Sullivan, Helen F.	Denver	Denver
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Sherman, E. M.	Holly	Prowers	Taylor, R. R.	Pueblo	Pueblo
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Simon, Saling	Denver	Denver	Thompson, W. E.	Greeley	Weld
Singer, W. F.	Pueblo	Pueblo	Threlkeld, Richard L	Denver	Denver
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Sloan, W. W.	Mt. Harris	Northwestern	Tidd, C. H.	Telluride	Delta

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Van Stone, L. M....	Denver	Denver	Williams, W. W....	Denver	Denver
Van Stone, W. D....	Denver	Denver	Williamson, A. R....	Pueblo	Pueblo
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Vroom, J. N.....	Denver	Denver	Wilson, R. E.....	Denver	Denver
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Webb, E. C.....	Canon City	Fremont	Worthington, A. K..	Denver	Denver
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West, T. J.....	Pasadena, Calif.....	Denver	Yont, Kate.....	Denver	Denver
Wetherill, H. G....	Monteray, Calif.....	Denver	Young, H. B.....	Denver	Denver
Whitaker, H. L....	Denver	Denver	Youngman, J. W....	Wiggins	Morgan
Whitaker, W. O....	Kirk	Kit Carson	Zillman, O. E.....	Denver	Denver
White, H. T.....	Denver	Denver	Zimmerman, Wm....	Manzanola	Otero
White, H. W.....	Fruita	Mesa	Zinke, Wm.....	Collbran	Mesa
White, W. J.....	Longmont	Boulder			

*Deceased.

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